COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS
DECEMBER 1945

ENGINEERING LIBRARY

"It's Really Christmas Again"

BEST WISHES FOR A JOYOUS CHRISTMAS AND A PROSPEROUS NEW YEAR—

REO MOTORS, INC.

Trucks that Fit The Job last longer . . .

YES . . . and when a truck fits *your* job like a Dodge *Job-Rated* truck will, you'll save *money*, too.

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No wonder more and more truck users are planning now to *standardize* on dependable, economical, precision-built Dodge *Job-Rated* trucks.

When *you* buy trucks, invest in trucks that fit *your* job . . . Dodge *Job-Rated* trucks . . . for performance, for economy, and for long life.

BUY VICTORY BONDS

ORDER YOUR NEW DODGE *JOB-RATED* TRUCK *NOW*

Your Dodge dealer is now taking orders for new *Job-Rated* trucks. See him now about the *economy* truck for *your* job . . . a Dodge *Job-Rated* truck.

DODGE DIVISION, CHRYSLER CORPORATION

Truck Parts Are Important—Truck owners tell us that they'll long remember the quick wartime availability of factory-engineered Dodge truck parts. Parts when you need them: that's the Dodge way . . . your protection from costly delay.

LISTEN TO THE MUSIC OF ANDRE KOSTELANETZ
WITH GUEST STARS, THURSDAYS, CBS, 9 P. M., E. T.

DODGE *Job Rated* TRUCKS

FIT THE JOB . . . LAST LONGER

COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance
Reg. U. S. Pat. Off.

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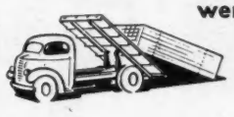
LIFE story of a St.Paul Hoist

1931- Little #30410 was born. With 10 of his brothers went right to work for Anderson Trucking Co., St. Paul.

1936- found #30410 working on a WPA job for a rest and a change.



1939- Mounted on a new C.O.E. truck, #30410 went into the lumber business at Spring Valley, Wisconsin.

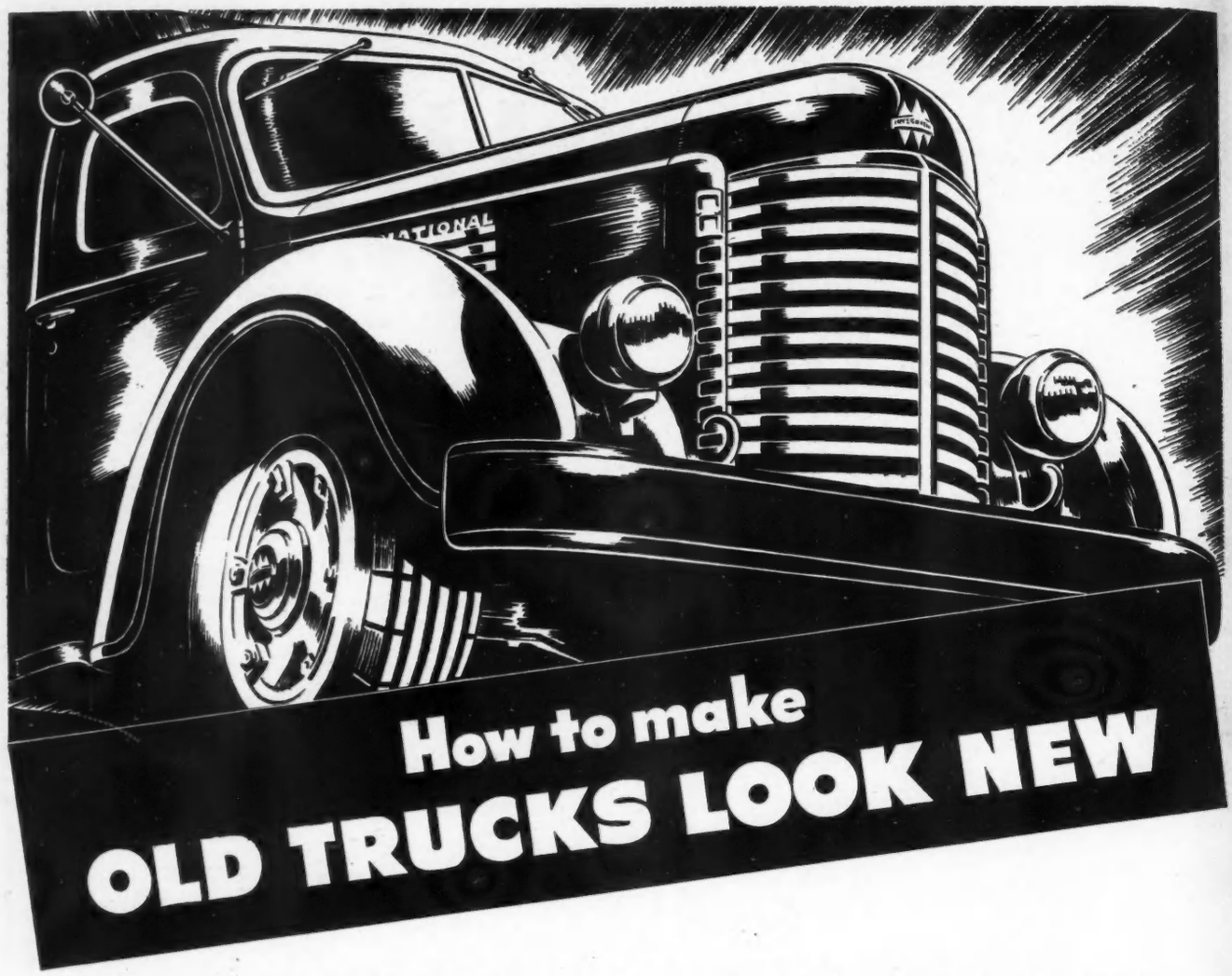
1943- Bought, with truck, by Harold Mountin, Elmwood, Wisconsin.

1945- Home again for a pump overhaul! "I haven't had five minutes' trouble with that hoist," said Mr. Mountin. We patted its cylinder.

"Nice going, little #30410," we said. "Maybe after a few more years of service you can come home for good."

#30410 never batted a lifting arm but we thought we detected an oil-drop coursing down its weathered pump housing.

ST.PAUL HYDRAULIC HOIST COMPANY
2207 UNIVERSITY AVENUE SOUTHEAST
MINNEAPOLIS 14, MINNESOTA



How to make OLD TRUCKS LOOK NEW

• Here's a way to make old trucks look new—quick. Drive them to your International Truck Branch or Dealer and say, "I want an Appearance Reconditioning Job done on these fellows."

And you'll get it, because sheet metal and other materials that were out because of the war, are back. You'll get perfect fitting new International fenders, radiator grilles, hood sheets, doors, glass, hardware, headlights, bumpers, bumper guards and seat cushions—just what you want to put your trucks in shape.

Next, paint jobs if the trucks need them—new paint to clean-up and brighten-up the whole trucks, and cause people to say, "There's one operator who certainly keeps his trucks looking swell."

The cost? Not great. The result? Marvelous.

•

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago 1, Illinois

Act now. Truck production has increased, but it will take many years to meet the demand. Get your trucks "Appearance Reconditioned" by your International Truck Branch or Dealer. Make 'em good advertisements for you while you get additional economical miles from them.

Get These Too When You Get Your Trucks

"APPEARANCE RECONDITIONED"

• Hot Water Heaters and Defrosters • Seat Covers Elston Electric Road Sanders • Saf-T-Step • SOS Fire Guard • Whiz Automotive Chemicals • Spot Lights, Fog Lights and Driving Lights • Clearance Lights, Flags, Flares, Directional Signals and other Safety Devices.

All available from your International Truck Branch or Dealer

INTERNATIONAL

INTERNATIONAL *Trucks*

This Month's PAYLOAD

• *Letters from Readers—On Service Instruction Cards*

The boys who keep 'em rolling take four pages to say what they think about the maintenance data they use. Some like them, most don't. Maybe your letter is among those published. Page 36

• *Electric Arc Welding Blocks, Cases, Frames and Shafts*

Practical procedures, not elementary textbook stuff. This is excerpted from the SAE-ODT report on the most successful welding repairs. Ten jobs are discussed step-by-step. Page 46

• *Reducing Maintenance by Instrumentation*

If the diagnosis of an engine defect is faulty, then the attempt to remedy the condition is wasted effort, says the author. He proves instruments cut work, save money. Page 52

• *The Future of Diesel Fuels*

An Eyeing-the-Future feature that spikes the gloomy talk that modern gasoline distillation methods will cause a diesel drought. The demand is growing; fuel will be available. Page 62

• *Fleet's Shop Builds Super Bodies*

Truck bodies were not flexible enough for the jobs on hand and they didn't stand up, so this fleet operator started to build his own. He wanted the best—he has what he wants. Page 74

• *Lest They Forget, Sell Them on Truck Transportation*

The public might forget truck transportation's excellent war record, says the author. He suggests truck ads to tell the day-by-day story of truck contribution to public needs. Page 88

. . . AND if you're interested in diesel engine maintenance you'll like "Ingenious Devices Improve Diesel Overhauls" on Page 42 . . . For more ideas on ingenious devices, time and labor saving ideas don't miss "Shop & Salvage Hints" on Page 50 . . . If you're working on driver training plans, you'll get interesting facts and figures from "The Cost of a Driver Training Program" on Page 57 . . . A clearer picture of the probable and improbable in trucks to come is given in "The Truck of the Future—Inside View" on Page 94 . . . What's in the wind in the near future, maybe tomorrow, is told in "Ears to the Ground" on Page 40 . . . Not to overlook developments abroad read "New British Electric Deliveries Have Unique Features" on Page 84 . . . You'll be posted on developments affecting your business in CCJ's Departments: "Washington Runaround, Page 66; Free Literature, Page 58; New Products, Page 59 . . . On the lighter side, "Laugh it Off" on Page 65 and "Heard by the Greaseman" will take your mind off business problems . . . There's a new series of Quiz Cartoons, eight of them, beginning Page 144 and, if they whet your appetite for more, you'll find the old standby CCJ Quiz on Page 106 . . . There's more good cargo aboard. See listing on Page 33.

LETTERS

. . . on Standardized Service Instruction Cards

This month we publish another batch of letters received from readers of J. Willard Lord's article "Standardized Service Instructions" which appeared in the October, 1945, issue of COMMERCIAL CAR JOURNAL.

Several readers have included suggestions in their letters which, they say, should add further advantages to the cards.

COMMERCIAL CAR JOURNAL and the various manufacturers concerned will be interested in what you have to say. Address your letter to Editor, COMMERCIAL CAR JOURNAL, Philadelphia 39, Pa.

Smaller Size, First Set Free, Charge for Replacements

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

I read the article on the proposed Standard Service Instruction Cards, and believe that it has outlined practically everything to be desired.

I think uniformity would increase popularity, and efficiency in composition.

Mechanics would be more likely to use them because several men would be able to use different cards at the same time which could not be done with a single manual.

Buyers should not be asked to pay for the cards. I believe the buyer of a piece of commercial equipment should be entitled to receive gratis, all the information pertaining to the repair and maintenance of that unit. Should the firsts be destroyed or worn out, then a reasonable fee might be charged for replacements.

The 14x18-in. size seems a bit cumbersome; 10 or 12x14 in. would be more to my liking.

A standard size metal file case should be provided for each set of cards to keep them intact and help protect them from damage.

In the past, I have not had too many complaints on service manuals, and so refrained from griping about them. I have noticed (contrary to Mr. J. W. Lord's opinion), a gradual cheapening of the parts catalogs issued in the past 10 or 12 years by most truck manufacturers.

Twenty years ago, most of them were nicely printed and illustrated to show practically every part of the vehicle. In later years, however, with the introduction of multigraphing, the number of illustrations has been cut to less than a bare minimum.

Some fail to provide an index, and one must paw and pore through page after page until the part being sought is finally located—sometimes in a group where it is not expected to be.

Occasionally, we cannot find certain parts anywhere in the book and have to call the parent organization to get a number. Standard SAE parts nomenclature should be used by all manufacturers; call a pawl, a pawl and a ratchet, a ratchet.

I wish you success in your many efforts to make things easier and better for the operators and repair men of the Nation's most important service, automotive transportation.

CLINTON STUTTER, Foreman,
Maspeth, N. Y.

Cards Would be Great Help

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

The service card as shown in October COMMERCIAL CAR JOURNAL would be a great help in any shop.

It would be a matter of training the boys to get used to them.

Any operator would be glad to invest in something that will help turn out better and faster work.

Size 14x18 seems rather large but anything smaller may be hard to read the print. As long as all manufacturers make them the same, size won't make any difference.

JOS. SHUBAT, Shop Foreman,
Annhauser-Busch, Inc.,
Chicago, Ill.

Thinks Cards Ideal

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

I think your instruction cards ideal.

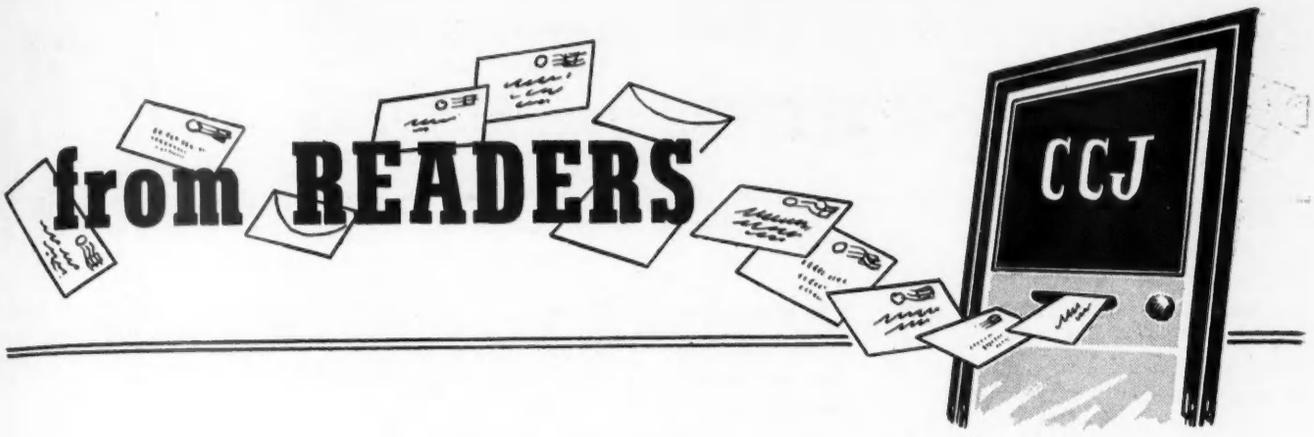
I, for one, sooner would handle the cards than the manual. It should save time and money in the long run. I think the size you mention is about right. Hope to see them out soon.

WM. BUDESHEIN, Mechanic,
General Ice Cream Co.,
Schenectady, N. Y.

Cards an Excellent Idea

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

I think the article and plan by Mr. Lord is an excellent idea. My personal experience with the present type manual is that it is cumbersome



to handle and preserve while using on the job.

As to whther fleet owners would be willing to invest in them is a question, but, if the cost were not too prohibitive, I, myself, would buy one and I imagine most fellows would buy them for themselves, if the companies did not.

It seems to me that the size mentioned would be OK. It would be large enough for fair size illustrations and print and could be given a casual glance at a distance, which will save time.

As to the manufacturer, the more information in the hands of men entrusted with the care of their product the better the maintenance and the better the performance, which is one of the best mediums of reaching the inner office for resale.

I can say, from my own experience, that it is difficult to obtain information from the dealership, because the shop foreman has the manual and the other mechanics use their own experience, often misleading.

J. P. Bywater, Dl. Supvr.,
Nye & Nissen, Inc.,
Murray, Utah

With Him, It's Tops

Editor, Commercial Car Journal,
Dear Sir:

After reading the article in October CCJ, it seems to me that the setup has been pretty well covered from every angle. The size, make and type of paper suits okay. I see no reason why any operator should object to paying a nominal sum for such service.

With me, it's tops, just what we've been looking for.

G. C. Renyck, Transpt. Dept.,
Penna. Edison Company,
Altoona, Pa.

100 Per Cent for It

Editor, Commercial Car Journal,
Dear Sir:

I think the Standard Service Instruction Card system is the best I have seen or hard of yet. I am 100 per cent for it. It is far superior to the manual type. This card system will be easier to handle—no more trying to prop books open and also hunting for your page every time it gets closed, which happens just about every time you turn your head away.

I think the trade would be willing to pay a nominal sum for a better system of service instructions. The size 14x18 is about right.

I wish you all the luck in the world on this new plan. May it come into being in the near future.

George A. Gebhard,
U. S. Forest Service, Equip. Depot,
Arcadia, Cal.

Advisable to Have Both

Editor, Commercial Car Journal,
Dear Sir:

I have read the article in the October issue of Commercial Car Journal regarding Standardized Service Instructions for mechanics, and I wish to advise as follows:

I believe the proposed standard service instruction cards would be of benefit to mechanics on each individual job. It is not the general practice, I believe, for most mechanics to take time to look up service instructions in a manual, but with the service cards, looking up instructions would be much more practical and convenient.

I believe most fleet operators, as well as states and counties, would be willing to pay a nominal sum for special instruction cards, in view of the fact that they would cover all types of equipment on which mechanics would work.

The standard size card which you propose to use is, I believe, the correct size. By using this size card, no doubt the lettering would be more visible.

I believe it would still be advisable to have manuals for the shop superintendent to keep in his files for reference.

Carleton B. Bailey,
Hwy. Equip. Supvr.,
Department of Highways,
St. Paul, Minn.

Suggests Cards With Hole

Editor, Commercial Car Journal,
Dear Sir:

In favor 100 per cent.

Would have top punched so as to hang special cards by their respective jobs or machines or tools to save handling. This would be done when something new came out, as certain ones should be on the bulletin board, etc.

S. G. Barnard, Fl. Supt.,
Lloyd Transfer Co.,
Seattle, Wash.

Suggests Immediate Adoption Willing to Share Cost

Editor, Commercial Car Journal,
Dear Sir:

I have read with great interest the article by Mr. J. Willard Lord entitled "Standardized Service Instructions" in the October issue of Commercial Car Journal.

Please accept my approval of the plan of standardized service instruction offered by the SAE-ODT Committee. Refinement and improvement may be necessary in the future, but now it would be so desirable to

(turn to next page, please)

see manufacturers adopt such a plan as this. They should start with the very first truck manufactured as a postwar model.

The cost of preparing such instruction will no doubt be quite heavy, but the ultimate value to operators and repair shops would be great. If the cost seems too great, let the consumer bear a portion of the cost of the cards. This will divide the participation and responsibilities and should aid in better appreciation of the value of these maintenance cards.

We, of the logging industry, use many custom-built trucks—as a result we have service manuals of the same nature. A manufacturer of one component unit may give a very complete outline of service instructions in the folder supplied us, while the second manufacturer of another component unit will give a very sketchy and brief outline of the service instructions for his unit. In the end, operators become disgusted and lose confidence in the service manuals as they are supplied and often times fail to make proper use of them.

My thanks also to COMMERCIAL CAR JOURNAL for sponsoring the publicity of this very desirable standardization program.

ROBERT W. OLIN, Mech., Supt.,
Woods Operations,
Potlach Forests, Inc.,
Lewiston, Idaho.

Manuals Much Better

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

I think the present-day service manuals are much better than the standard service instruction cards, and I think the fleet mechanic would rather have service manuals. I think that it would be easier to misplace the instruction cards. I very much prefer the service manuals.

H. C. HOEHNE, Superintendent,
California Oregon Power Co.,
Roseburg, Ore.

The Most Forward Step in Automotive Service

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

If you can convince manufacturers to publish such instructions instead of the junk they now put out, it will be the most forward step in service work in the history of automotive service. I believe every service man would use such cards, whereas it is next to impossible to use a manual.

We would gladly pay for such cards. At present we either pay for manuals or binders and would not object to paying for something to benefit us. The size is OK. Be sure cards are printed on tough heavy paper to stand wear and so printed as to stand washing in gas or solvent, as they do get dirty when used.

E. J. GROW, Fl. Supt.,
City of El Segundo,
El Segundo, Cal.

On the Right Track, Offers Other Suggestions

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

I personally believe that at last you are on the right track in every way except that I think that you may consider a wall rack instead of a filing cabinet or one that a man can walk up to and turn the pages and stand there and study up on each particular job.

You might also consider cellophane covers or windows that can be used on both sides.

A colored lettering scheme could be used to certain advantage.

I do not believe that I would like anything smaller than 14x18. All the "Don'ts" should be listed, too.

B. J. NATIONS,
Shell Oil Co.,
Long Beach, Cal.

Cards Better Than Manuals

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

I believe the cards would be better than manuals in that they would be easier handled and, if kept properly filed, more convenient to find and use. Surely, any fleet owner would be willing to pay a reasonable amount for them in view of more efficient service on the equipment. I think any mechanic would be glad to avail himself of the information, if it is complete and practical.

Much of the information contained in service manuals is nothing more nor less than advertising matter. The size 14x18 should be about right. I don't believe any of these things are as important as the fact that service instruction material should be accurate, practical and comprehensive. Most of us can perform the run-of-the-mill operations, but when something unusual comes up, then we want help from the service manual and so often we don't find it.

LEWIS CONDON,
Rainbo Bread Co.,
Brookfield, Mo.

Card Most Effective

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

I certainly think the proposed standard service instruction card is the most effective way of publishing mechanics' service instructions.

The fleet mechanics will be more likely to use such instruction cards for the reason that the foreman can issue the correct instruction card for each job.

It might interest you to know that I discussed this subject with one of our shop foremen who is highly in favor of this new set-up. I can assure you that our company will secure the proposed standardized instruction cards when they are available. It seems to me that any fleet shop could not afford to be without the proposed standardized instruction cards.

I am inclined to think that the card should be 14x18 for this size will permit the use of large cuts and

illustrations, so that the mechanic will have no difficulty in checking on small detail. Maximum illustration and instruction on a single card will be conducive to a better perspective of the job for the mechanic.

A great advantage of the Instruction Card system is that it can be tailored to meet the requirements of the fleet and kept up to date by securing cards on the new model trucks as they are added.

E. F. THORNE, Equip. Maint. Supvr.,
International Cementers, Inc.,
Long Beach, Cal.

Suggests Portable Set for Travelling Mechanics

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

The Standard Service Instruction Card for on-the-job mechanics is preferred to present service manuals.

I believe the cost will be in line with any good tool. A good ready reference instruction service manual card system is a valuable tool and, due to its simplicity, will be used.

In so far as size, it will be satisfactory if some filing cabinet manufacturer will make a one-, two- or three-drawer size cabinet. This cabinet should stand waist high and be on casters.

A good many mechanics are required to travel and at present lack facilities to carry all service bulletins covering the vehicles they service. I suggest some consideration be given to a binder or brief case in which these cards can be carried. The traveling mechanic, I believe, would be satisfied if he could carry about 100 select cards covering the highlights of the vehicles he services.

B. H. EATON,
Div. Motor Vehicle Supt.,
The Bell Telephone Co. of Penna.,
Pittsburgh, Pa.

Manuals Are Sufficient

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

Present-day service manuals are sufficient.

Instruction cards will promptly be taken care of in the beginning, but later on will gradually be neglected.

Instruction cards will require extra work for personnel.

C. D. KIENZLE,
I. T. Williams & Son,
Carteret, N. J.

Bought Instruction Cards, Very Much in Favor

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

Some years ago, the White Motor Truck Co. made up Standard Service Instruction Cards covering the various trucks and tractors which they manufactured. We had some 31 Whites at that time, but only two different models. While the White Company gave us Service Manuals, they also offered, at a nominal charge, complete sets of Standard Instruction Cards which were waterproofed and oil-proofed and they came in metal cases. I believe it cost us in the neighborhood of $10 each.

Our garage superintendent tells me that these instruction cards, which contained actual cuts of the parts explained, have been invaluable in the maintenance of these trucks.

While service manuals, no doubt, serve their purpose very well, they soon become dirty and worn and illegible, whereas the waterproof and oilproof cards can be wiped off should they become dirty and they are always legible.

We are very much in favor of Standard Service Instruction Cards and have found them very valuable, especially where mechanic's helpers are employed or new men who don't understand and are not acquainted with the various models and makes.

O. H. BRATZ,
Vice Pres. & Asst. Gen. Mgr.,
Motor Transport Co.,
Milwaukee, Wis.

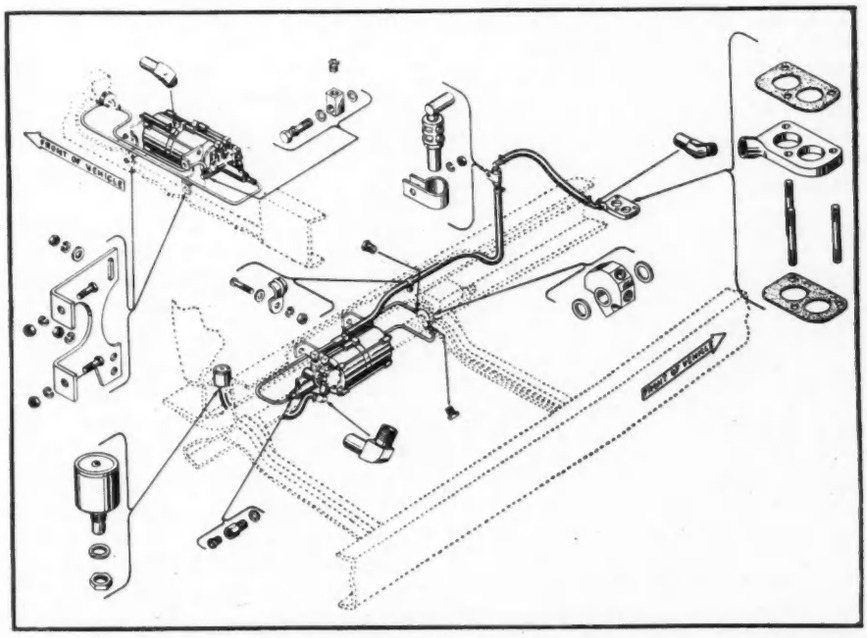
Suggests Different Colors for Each Assembly

EDITOR, COMMERCIAL CAR JOURNAL,
DEAR SIR:

Think it would be a very good idea to have the instruction cards.

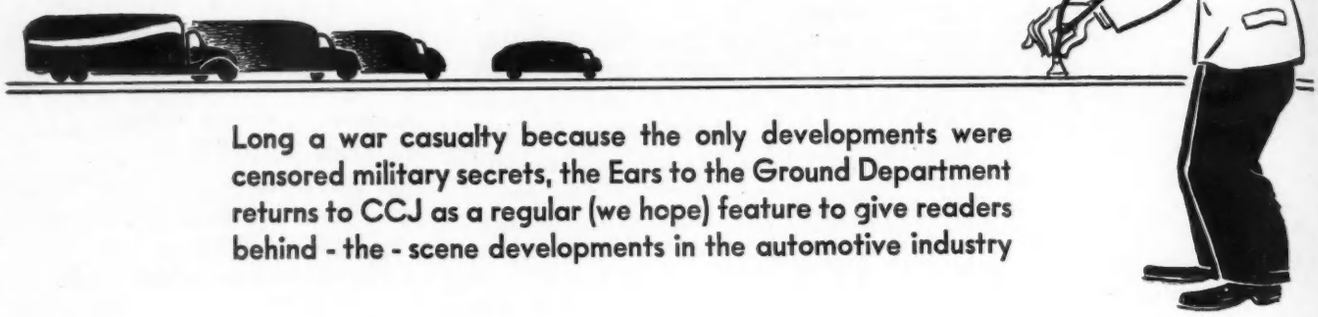
Also, think different color cards for each assembly would be in order. Service instruction cards should be such that the average mechanic could understand. Each job should be broken down and put together in detail. All special tools needed should be listed. Do not give only part of instructions and leave rest for mechanic to guess at.

JOHN R. HARRIS, Fl. Supt.,
Richmond Newspapers, Inc.,
Richmond, Va.



An example of how service instruction has been improved with visual training aids in seen in this new "installograph" developed by Bendix Products Division of Bendix Aviation. The instruction aid allows service men to grasp at a glance the "how to install it" information they need. The chart employs an "exploded view" and the "perspective assembly view" — two visual training techniques widely used by the army and navy and war production industry. Combination of these two pictorial techniques instantly gives the mechanic a clear picture of proper parts installation and their correct relation for assembly. The chart is said to save hours of time by eliminating complicated engineering drawings and lengthy written instructions. Installographs are being furnished for the new hydrovac vacuum power braking systems and eventually on other service products

EARS to the GROUND



Long a war casualty because the only developments were censored military secrets, the Ears to the Ground Department returns to CCJ as a regular (we hope) feature to give readers behind - the - scene developments in the automotive industry

New Diesels Due

Several important engine builders making gasoline engines primarily are said to be grooming lines of diesel engines for industrial and motor vehicle applications. We have it on good authority that the developments are well under way and it's only a matter of some months before public disclosure will be made.

V-8 Diesels, Too

The Midwest tip of our extensive ears reports that one of the best known producers of gasoline and diesel engines has some ambitious plans for postwar exploitation. Among other things they expect to bring out some small diesel engines; also some large ones of V-8 type. You can be sure we shall keep you posted.

Big Thinking

Our roving editor reports considerable thinking about real large output engines for motor vehicle use. And we mean jobs ranging around 500 hp. One speculative statement made some time ago hinted at the possibility that a truck version might be created from a large output marine engine which played an important part in the war.

Plans ¾-Ton Jeep

We hear unofficially that one of the large truck producers has plans to introduce a jeep type—four wheel drive—vehicle rated around ¾ ton. We hope to know more about this very soon.

Glued Brake Linings

By using the right combination of plastic, heat and pressure it's possible to stick things together without using fastenings of any kind. Our midwest ears hear that this trick can be applied to the fastening of brake linings to brake shoes and will be done soon by an important producer. This holds great promise for fleetmen. For instance, if there are no rivets and no holes, you have more braking area. And the lining can last twice as long.

Syncronized Transmission

Despite what has been done with fluid couplings and torque converters during the war, so far as we can learn neither of these units is ready for introduction as standard items.

That doesn't discount the possibility that the picture may change in the months to come. We do know that Fuller has brought out an advanced type of five-speed transmission that's recommended for extra heavy duty off-highway work. It has helical gears for all forward ratios and jaw clutches for all ratios including reverse. Another prominent manufacturer is expected to announce a heavy-duty job that's fully synchronized. That will be exciting news when it's ready.

90% Steering Assistance

An air-operated power steering device, self-contained and weighing only 15 lb. is ready for the fleet market and we expect to have complete details for an early issue. Meanwhile we can tell you that it can easily be attached to any truck, old or new, without removing any part of the vehicle. It is completely automatic, nothing to push or pull; a light touch of the foot puts it in and out of operation. It does not interfere with the free play of the steering wheel. The maker says it provides 90 per cent of all steering power whether the vehicle to which it is attached is in motion or standing still.

Twin Engines, Two Front Axles

Unique 10-wheel truck intended for fast, long distance hauling has been introduced by The Eisenhauer Mfg. Co., Van Wert, Ohio, and will be described in detail in the Jannuary issue of CCJ. While the first edition is made up of the major parts of two 1½-ton Chevrolet trucks, the company claims it can make similar vehicles from the components of any 1½-tonner preferred by the fleetman. The truck has two front axles with steering on four wheels; and three rear axles, the center one being a dead axle. The driving axles are two-speed Timken axles with shifting by air cylinders. Power comes from two Chevrolet engines mounted in line; one under the hood, the other beneath the cab. The vehicle is said to have a 20-ton payload capacity.

Diamond T Line Expanding

Diamond T is letting it be known that in 1946 it will add to its line (a) a specialty vehicle for multi-stop service, complete with body and particularly designed for dairies, bakeries, laundries and department stores; (b) a 1-ton conventional model of heavy-duty construction with standard pick-up body; (c) an improved series of engines with substantially increased power which will go in as standard equipment. The engines, we hear, will embody changes.

Trailer to Have Bar Suspension

First announcement of a heavy-duty trailer with torsion bar suspension is pending at this writing. We hope to have the story in full detail in the January issue of CCJ.

EDITORIAL

Suggestion for a New Year's Resolution

WITH the single exception of tires, truck operators are relieved of all wartime controls. That is something for which to be thankful as the New Year approaches. But. . .

TRUCK operating costs are higher than they have ever been. Class I motor carriers of property are paying out 99.4 cents of every $1 of revenue they take in. Labor is dissatisfied with current wage rates. Strikes for more money are in progress and in prospect. So what?

SO OPA price controls prevent many truck users from increasing their revenues to defray the higher operating costs and to meet the demands of labor. Competition and regulatory controls prevent others. The consuming public, even while asking higher wages, wants no increase in the price of goods. But higher operating costs mean higher transportation costs and such costs must be included in prices.

Are you confused?- Who isn't? And what's being done about it?

EMPLOYERS and employees are battling it out . . . some in peaceful negotiations, others in costly strikes. Unions go to bat with unions. And Government? The Federal branch has let human nature take its course and make a spectacle of itself before the bar of public opinion. Now it is preparing to adopt punitive measures and compulsory practices which may arouse the opposition of both labor and management and compound the confusion. And yet it must do something. Meanwhile, what are State Governments doing? It has taken us a long time to lead up to this question but it has been in the forefront of our thinking from the outset. State Governments are doing nothing constructive. In fact some of them are flying in the teeth of current transportation economics: they are taking back the increased gross weights which they gave motor trucks by gubernatorial proclamation and regulatory order as a war emergency necessity.

TRUCK operators — for-hire and private — in the rehabilitation problem that confronts them, have a right to expect help. They also have an obligation to help themselves. It is a certainty that they will in time get help from the manufacturers of automotive products. Those manufacturers will find it competitively urgent to provide trucks that cost less to operate; parts that last longer and contribute to improved performance; tires that give longer, more trouble-free life; accessories that more than pay for themselves in safe and efficient truck operation; shop equipment that increases productiveness while raising the standard of maintenance quality.

OPERATORS have a right to expect help from legislators but there is not the same competitive urgency to make such help available without persuasion and insistence. In order to pass on benefits to the public and to their employees, operators must first become beneficiaries. Legislators must be persuaded that restrictive truck legislation is not the method by which revenues are increased, costs kept down, public service improved, prices maintained or lowered, and employees' envelopes fattened. There must be insistence that only by liberalizing sizes and weights, removing trade barriers, building new free highways and renovating existing ones to accommodate the liberalized sizes and weights can motor freight carriers and other businesses using trucks make their contribution to improved national economics and that goal known as a higher standard of living.

IN their approach to legislative problems, operators have a right to expect the support of their employees—organized and unorganized. Organized labor already is on record as favoring a common effort to remove unsound, injurious truck legislation. This willingness to assert an electorate's right must be expanded to include all employees, and the combined strength must be marshalled at the opportune moment. In the election years ahead there will be many opportunities but it is not too late to begin planning now to take advantage of them. The effort must be organized. It is one time labor and management can sit down together, not to ask something of each other, but unitedly to demand things of elected representatives and of political aspirants which will result in benefits they can commonly share.

THE present has some disheartening aspects but with courage, foresight and intelligent application the many elements making up the truck industry have it in their power to help make the coming new years happy and prosperous.

H. E. Larson

"SOUPING UP" SMALL DIESELS

"We have been 'souping up' our 150 hp. engines and get 175 hp. or better. In driver's parlance, they do about 'half a gear' better. To get this additional power we do the following things: Install aluminum pistons together with either nitro chrome or porous chrome sleeve linings . . . We have raised the gov-

Ingenious Devices Improve D

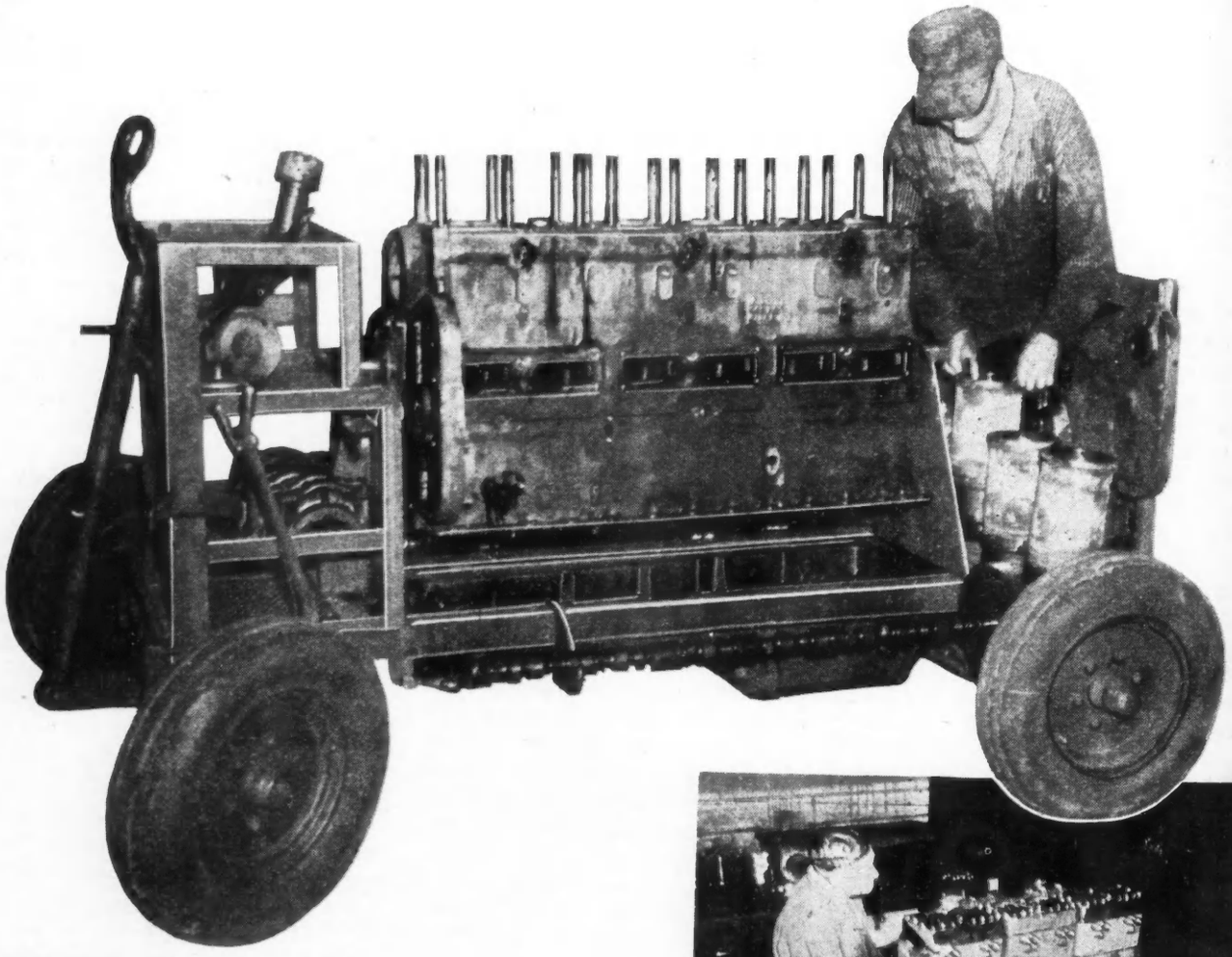


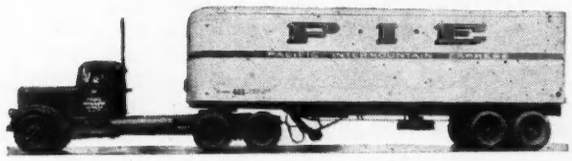
Fig. 1. Engine block and all parts are thoroughly cleaned on the portable rack

Fig. 2, right. A rebuilt engine. Fig. 3, extreme right. Weighing the "big end" of connecting rod for accurate balance

GAINS 25 HP. PER ENGINE

erned speed of the engine from 1800 r.p.m. to 2000 r.p.m. by drilling some metal from the governor weights so that the governor does not cut out until it reaches 2000 r.p.m. This allows that engine to come within 25 hp. of its bigger brother, which has a governed speed of 2100 with 1¼ in. larger bore.

E. B. Ogden



Diesel Overhauls

by H. E. LARSON
Superintendent of Maintenance

AND

by E. B. OGDEN
Assistant Superintendent
Pacific Intermountain Express Co.,
Salt Lake City, Utah

WE PLACE special emphasis on thoroughness in all phases of our maintenance but especially when rebuilding our diesel engines. We have 95 of them and, since crankshaft measurements usually determine the necessity of engine rebuilding in our system, we will give our crankshaft rules first.

A crankshaft that measures .004 in. out of round is marked for regrinding and the engine changed at any of the 70,000- or 140,000-mile checks in our PM program.

After the engine has been dismantled and the crankshaft removed, all throws are ground down to the same undersize even though only one throw needed grinding. This insures, on the next bearing repair or engine rebuild, that when a mechanic mikes one throw and finds it a certain size that all the other throws will be the same size. This same procedure is followed with main bearings. In other words, all main bearings are held to one size.

Crankshafts are ground down in steps of .010 to .040, or four times from original standard, with each step taking a standard measure and a standard size shell.

To better understand our rebuilding system, a description of our dismantling process is needed. We have a place for each part that is removed. Since the first step after dismantling is a thorough cleaning, we have built a special, rubber-tired truck which has a place for the block, sleeves, pistons, rods and all other parts. The rack also holds a camshaft on one side and a crankshaft on the other. All parts are washed with a cleaning solution and steamed. The truck is designed so that the washman can revolve the camshaft, the crankshaft and block while they are cleaned. This

(TURN TO NEXT PAGE, PLEASE)

Home-made, rubber-tired engine block truck, tools for installing injector coppers and other devices promote efficiency and give very good results

Ingenious Devices . .

(Continued from Page 43)

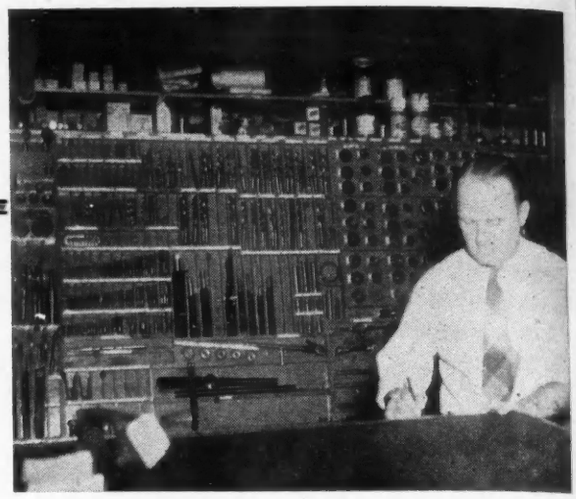


Fig. 4. View of the stockroom showing large tool board, where tools are stored for quick locating

THESE TOOLS PAY DIVIDENDS

"Injector seat coppers are watched closely. If they need renewing, to get the proper seal between injector nozzle and the block, we do the job ourselves. We have made our own tools for this job. These coppers have to be rolled into grooves at the top and swaged in at the bottom.

"We used to pay an outside charge of $17 per copper. Now we do it ourselves at a cost of $1.04 per copper, plus 1 hr. labor.

portable rack is towed back to the engine department and the rebuilding process begins.

Determining Misalignment in Block

FIRST, the block goes to the motor stand where it is thoroughly checked for cracks and all scale is removed from sleeve bores. We have a pilot shaft, as long as the block, turned to the size of the bearing bores with shells removed. This is placed in the bearing bores in the block. All caps are put on and tightened down to factory tension. This is our method of determining whether there are any misalignments or warps in the block. If the block is true the, pilot bar can be removed without removing any of the bearing caps.

Main bearings nuts are tightened with a torque wrench to a pressure of 325 ft.-lb. This is our oldest method and has given very satisfactory results. A newer method which we use sometimes, and which also seems to give good results, is to turn the nut up to a pressure of 50 lb., then mark position of the nut and arbitrarily turn it 50 deg. further.

Connecting rod nuts are turned up to 20 lb., plus or minus 5 lb., and then arbitrarily advanced 60 deg., or one hex of the nut. The idea of this method is to combat galling and false torque readings due to excessive friction between snug position and the tight position of the nut.

After checking the block for alignment, we next lay in the new bearing shells and crankshaft. Each bearing is checked separately with a test shim .004 thick. This must permit the shaft to be rotated by hand with a slight or discernible drag. We have often found that all factory shells do not check alike. When we find one that fails on the above test, we bore enough out to get the .004 clearance. If it is too loose, it is discarded. However, we bore each shell separately. We do not line bore.

With the main bearings fitted, we turn to the sleeves. All of our units use wet sleeves and in fitting each sleeve must fit into the block bore with hand pressure only. We have found that even a slight hammer pressure may put a sleeve out of round.

Pistons, rods and bolts are all magnafluxed and if any flaws or cracks show up they are discarded. All of our cast iron pistons are used over and over again as long as there is not any undue wear in the ring lands.

Con-Rod Salvage

THE same is true of connecting rods, however, we find that the crank end of the rods can go out of round badly in some cases and we have found a remedy and salvage for these rods. We machine off a small amount of the face of the cap at the parting line and regrind to exact round again (this is the bore before bearing is installed) with connecting rod cap and bolt in place at proper tension. This restores it to previous standard, except the rod is short the amount we have removed. To compensate for this, we install a piston pin bushing of about .050 under standard and through use of a special built jig which is set at the exact length dimensions, we bore this hole slightly eccentric. This is not detrimental since the bushing does not move.

Before connecting rods are reinstalled, they are matched to one-fourth ounce of each other in sets of six in the interest of smoother engine operations because any slight difference in the big end of the rod is multiplied many times when the weight is in a vertical position. When it is

rotating we make sure there is no difference or excess weight on the outside of the throw which would make a vibrating or rough running engine. Consequently, the heavy end is balanced. Excess weight is removed by taking metal off each connecting rod nut and we have found we can remove one-half ounce off each nut without damage to its holding qualities. The total over-all weight of piston and sleeve assemblies is kept within one-half ounce of each other.

Before installing pistons each piston is checked in the bore with a feeler gage and without rings to further determine that proper clearance exists. There should be a clearance of .005 to .006 for cast iron and .007 to .008 for aluminum pistons.

Piston and rod assemblies are then installed and all connecting rod bearings are checked with an .003 feeler gage to determine proper oil clearance. Sometimes it is necessary to bore out the rod shell to get this clearance.

Heads are handled on a special bench. In our type of engine there are three two-cylinder heads to each block. This special department handles nothing but heads and rocker arm assemblies.

Here valve guide wear is checked and any wear over .002 results in installation of new guides. Since new guides have a clearance of .002 at the start the over-all measurement for discarding is .004. This is quickly checked by the use of an oversize pilot feeler on a "go or no go" basis.

We install our own valve seats and find that the Stellite seat is giving us the best mileage.

All soft plugs are removed at the time of overhaul for cleaning scale out of the cylinder head.

Tools Save Money

INJECTOR seat coppers are watched closely. If they need renewing, to get the proper seal between injector nozzle and the block, we do the job ourselves. We have made our own tools for this job. These coppers have to be rolled into grooves at the top and swedged in at the bottom. We used to pay an outside charge of $17 per copper. Now we do it ourselves at a cost of $1.04 per copper, plus one hour labor.

Our engines consist of Cummins Diesels with the older models rated at 150 h.p. at 1800 r.p.m. and the newer ones at 200 h.p. at 2100 r.p.m. (Editor: Cummins HB-6, 150 h.p., and NH-6, 200 h.p.)

"Souping" Gains 25 Hp.

WE HAVE been "souping up" our 150 h.p. engines, and get 175 h.p. or better. In driver's parlance, they do about "half-a-gear" better. To get this additional power we do the following things: Install aluminum pistons together with either nitro chrome or porus chrome sleeve linings. However, we have not used this process long enough to have accurate and positive figures on the result. So far we only have 35,000 miles on these "souped-up" engines but, that far, they have given an excellent account of themselves. We have raised the governed speed of the engine from 1800 r.p.m. to 2000 r.p.m. by drilling some metal from the governor weights, so that the governor does not cut out until it reaches 2000 r.p.m. This allows that engine to come within 25 h.p. of the bigger brother, which has a governed speed of 2100 with the same stroke but ¼ in. larger bore.

Rebuilding high-speed Diesel motors offers many difficulties. Injector timing is of the utmost importance and is vital if a motor is to deliver full power. We discard all flywheel marks and set timing by measuring degrees from top of piston with a dial indicator gauge. Since our exact setting is a debatable issue with other shops, we will not discuss it. Suffice to say

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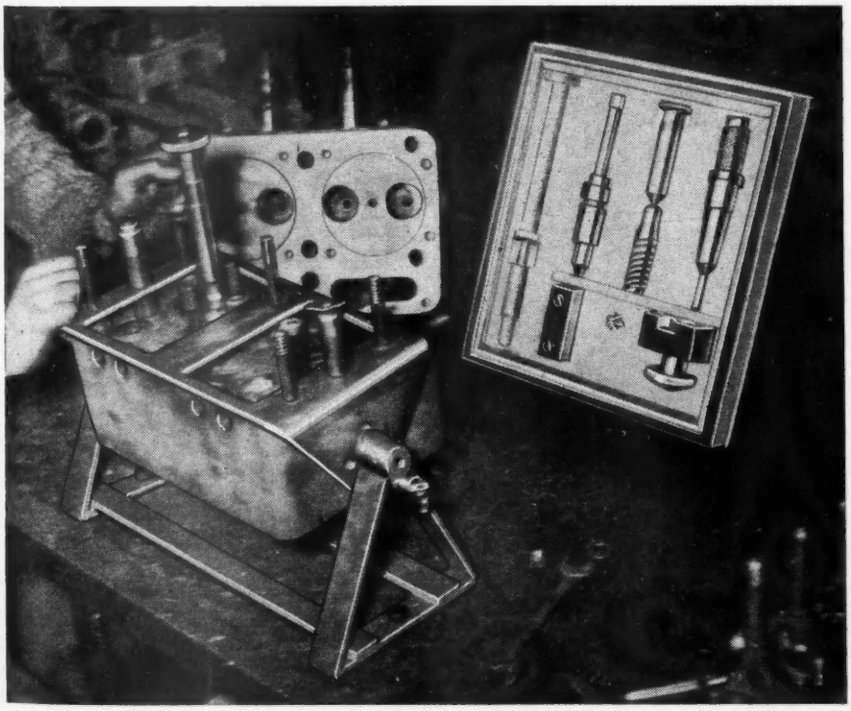
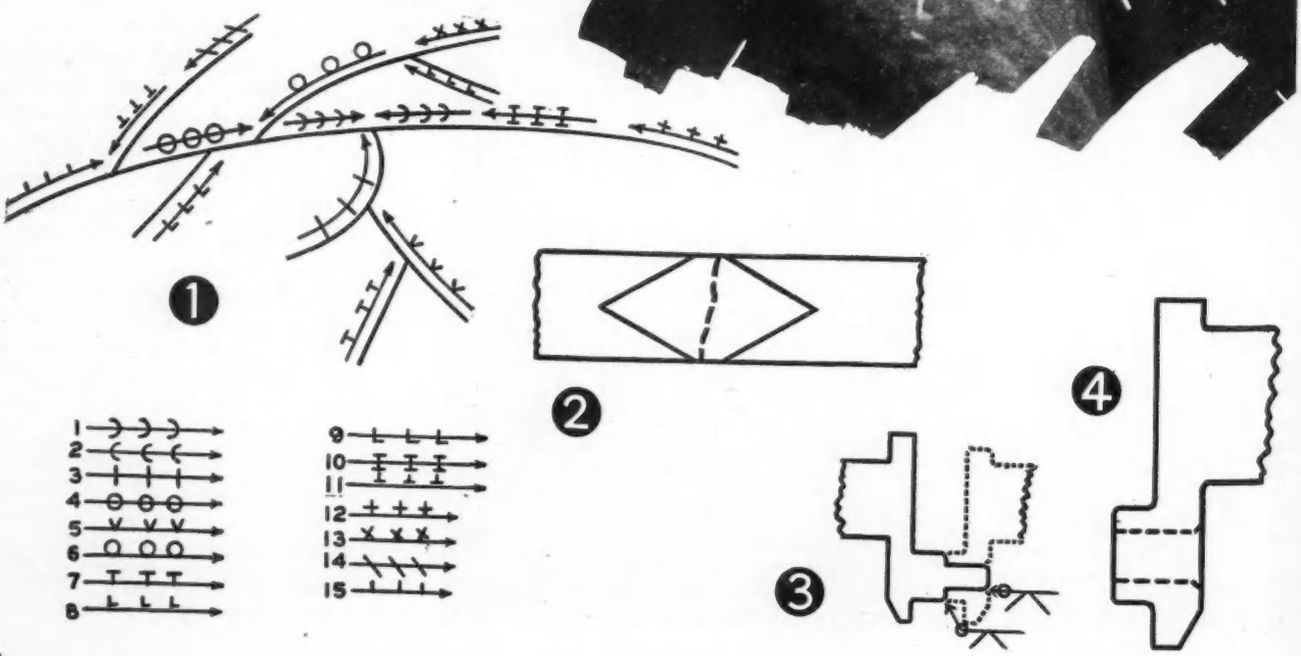


Fig. 5. Home-made tools are used to install injector coppers in cylinder heads. Other tools are in the case in the back

Techniques based on successful fleet



ELECTRIC
ARC Welding

SHAFTS • CASES • FRAMES • BLOCKS

experience include detailed procedure from preparation to treatment after welding

This is the second of two articles on welding and brazing excerpted from two reports on the repair processes submitted to the Maintanance Section of the Office of Defense Transportation by the Maintenance Methods Coordinating Committee of Society of Automotive Engineers.

These data explain the most successful arc welding techniques in use today. A number of typical cases—such as engine cylinder block, drive shaft, rear axle and automotive repair—are outlined in detail. Information is included regarding new techniques for which experience is limited but which have promise of being important to fleet operators.

METALLIC arc-welding consists essentially of a localized progressive melting and flowing together of adjacent edges of base metal parts by means of temperatures of approximately 10,000 deg. Fahr. from a sustained electric arc between a metal electrode and the base metal. In metallic arc-welding, the melting electrode furnishes the "filler metal," the arc being maintained by manual feeding of the melting electrode toward the base metal at a uniform rate.

In atomic hydrogen and in carbon arc-welding, "filler metal" in wire or rod form may or may not be manually fed into the arc and melted simultaneously with the base metal.

Engine Cylinder Block

JOB: To repair water-jacket breaks or cracks.

MATERIAL: Cast Iron.

PREPARATION: Clean thoroughly, grind or chip a "U"-shaped groove to equal in depth approximately 75 per cent of wall thickness; the width of the groove to equal the depth.

ELECTRODE: Special electrode for cast iron.

WELDING CURRENT: Reversed polarity (electrode positive); direct current; current range varies from 70 to 100 amp. for 1/8-in. electrode and 90 to 120 amp. for 5/32-in. electrode.

PREHEAT: If block is not removed from the vehicle, run the engine until the block is hot; drain the water from block; then preheat the area to be welded with a torch to approximately 300 deg. Fahr.

TACK WELDS: Tack welds, when necessary, should be approximately 1½ in. apart and about 3/8 in. in length. Chip and wire brush tack welds to remove slag before welding.

WELDING PROCEDURE: Weld intermittently in beads not over 3 in. long. Arrange sequence of welding so as to start on a tack weld or at the end of a crack, and stop on a tack weld or on another bead. Figure 1 gives an idea of the intermittent or "skip around" sequence of welding for a typical crack. Sequence of welding should be such that the heat created by the welding arc is distributed. If one portion of the weld area becomes too hot from the welding arc, allow it to cool somewhat before applying the next bead. On long welds it may be necessary to preheat again one portion of the welding area while permitting another portion to cool in order to keep the heat of the area uniform.

Before withdrawing the electrode from the weld puddle at the end of each weld, allow the crater to fill to the size of the weld bead in order

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Fig. 1, extreme left. Schematic diagram showing "skip-around" method of laying arc welds. Fig. 2. Frame reenforcing plate. Figs. 3 and 4. Diagram showing details of crankshaft weld

ELECTRIC *ARC* Welding . . .

(Continued from Page 47)

to prevent crater cracks. Lightly peen each bead immediately in order to reduce cooling strains. Clean each bead thoroughly before applying the next bead. Once a welding repair is started it should be completed in the intermittent manner described, without permitting any portion of the area to become cold.

TREATMENT AFTER WELDING: Protect welded area from drafts and permit to cool slowly.

NOTE: Other automotive parts made of cast iron that can be welded by following the above procedure are cylinder heads, transmission cases, crankcases and gear cases.

Crankcase (Aluminum)

JOB: To repair breaks or cracks in case.

MATERIAL: Cast Aluminum.

PREPARATION: Clean thoroughly; chip or grind a "U"-shaped groove to equal in depth approximately 75 per cent of wall thickness; the width of the groove to equal approximately the depth.

ELECTRODE: Coated-aluminum electrode, 5/32-in. diameter for thickness up to 5/16-in. metal and 3/16-in. diameter for thickness in excess of 5/16-in. metal.

WELDING CURRENT: Reversed polarity (electrode positive); direct current; current range varies from 110 to 170 amp. for 5/32-in. electrode and 150 to 225 amp. for 3/16-in. electrode.

PREHEAT: Some types of aluminum castings require preheating to prevent cracking. It is advisable to preheat where possible to do so and to relieve all tension or compression of the casting by loosening all bolts in the heat-affected area. A preheat of approximately 200 deg. Fahr. is required for the average casting and about 400 deg. Fahr. is required for any casting that is sensitive to cracking. Two hundred degrees Fahr. is not likely to damage any part. Should the repair be made with the engine in place, however, a temperature of 400 deg. Fahr. would damage bearings and other parts. Thus, for the greater preheat, it is necessary to remove and dismantle the engine.

TACK WELD: Small, light tack welds about 2 in. apart and ½ in. in length. Chip and wire brush tack welds to remove slag.

WELDING PROCEDURE: Arrange the sequence of welding so that the heat created by the welding arc is evenly distributed. Use the intermittent or "skip around" sequence of applying beads as described in the job sheet for cast-iron engine blocks. Use the back-step welding procedure whenever possible. Clean slag from center before restriking the arc. Complete the welding job once the casting has been heated by the welding arc. Carbon back-up plates can be used where possible to prevent sagging of casting. Avoid welding in a draft and keep case well covered with sheet asbestos or other suitable material during welding.

TREATMENT AFTER WELDING: Cover welded area and entire case with sheet asbestos and permit to cool slowly. When casting has cooled to room temperature, use hot water and a wire brush to remove all remaining slag from welds.

NOTE: Other automotive parts made of cast aluminum that can be welded by using the above procedure are transmission cases, gear cases, radiator shells and oil pans.

Frame (Not Heat Treated)

JOB: To repair a vertical break in an automotive frame.

MATERIAL: Structural or pressed steel. (Not heat treated.)

LOCATION OF REINFORCING PLATE: Outside of channels is possible.

PREPARATION: Remove the parts surrounding the broken section to permit the welding operation. Chip or cut out the fracture on the outside of the channel to approximately a 45 deg. bevel until a space of 3/32 to ⅛ in. is obtained between the beveled edges at the bottom of the groove. An oxyacetylene torch can be used to cut the bevel, but any rough edges at the surfaces of this channel should be ground flush. Jack the frame into alignment and clamp to hold. Fit and tack weld a piece of mild steel ⅛ x 1 in. on the inside of the channel to back up weld. This back-up strip may be left as a part of the joint or chipped out later as desired.

Cut out a diamond-shaped reinforcing plate, equal in thickness to the frame member, equal in length to twice the depth of the frame member at the location of break and equal in width to the depth of the frame member. An alternate

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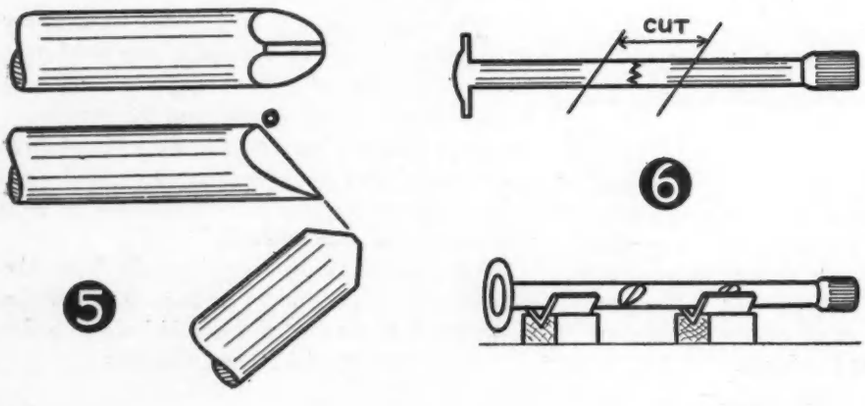
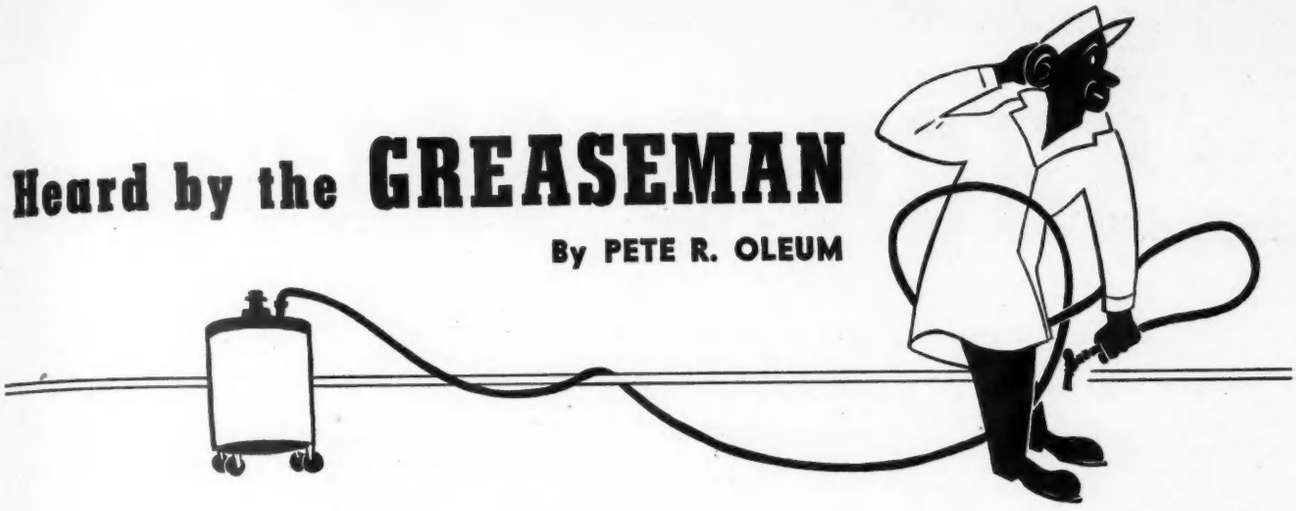


Fig. 5. Sketch showing diagonal bevel, blunt chisel point shape of ends of axle shaft before welding. Fig. 6. Suggested Vee-block fixtures for holding axle shafts in position while welding

Heard by the GREASEMAN

By PETE R. OLEUM



Rosie kept phoning the shop one morning to be sure and get her coffee and doughnuts when anyone went out. But the boys were too busy, and didn't have any tractors to roadtest that morning. Later Pete the Helper returning from the office:

"Rosie's mad at you fellows. Says all you think of is yourselves."

Eddie the Wolf: "That's what she thinks."

C C J

Driver starting his 8-hour rest, approaching Rosie, who makes the room reservations, with that look in his eye:

"The Dispatcher says for you to put me to bed."

C C J

Pete the Helper, helping himself to some pipe tobacco on the bench: "Whose is this?"

Mechanic: "Clancy's."

Pete: "Oh, that's all right. I like to know who I'm stealing from."

C C J

Clancy: "Why doesn't someone answer the phone?"

Dizzy: "Do you want them to think we're not busy?"

C C J

Driver: "The foot accelerator sticks down and she jumps out of fourth all the time."

Red (Hell on Wheels): "Hell, that's just the way you want it."

EDDIE, WATCHING THE DEPARTING ROSIE: "WHAT A PAIR OF DRIVE SHAFTS."

C C J

Eddie's wolf whistle from the shop doorway is now accompanied by a bull-like pawing of the ground with his right foot, should the wolfee look around.

C C J

Driver, to Old Timer, on top of a recently rebuilt service car: "Gee, she sure looks purty all painted up."

Old Timer: "Yes, now we're trying to get it to run."

C C J

Mechanic under an Autocar asked a Driver to hand him a screwdriver. The Driver handed him one of those midget telescoping screwdrivers, with progressively smaller bits in the handle:

Mechanic: "Hell, throw that away. Does this look like a Singer sewing machine?"

C C J

Dizzy, the rubber shoe flyweight, looking for some special bolts for a mechanic:

"I can't find any. What are they for anyway?"

Mechanic: "My own car."

Dizzy: "Oh, I'll look again. I thought it was for the company."

C C J

Dizzy: "You know I've been working like hell this morning."

Boss: "Mostly with your mouth."

C C J

Gabriel the Yardman rushing in:

"Hey, come out and help me, there's a body almost down."

Mechanic: "Why don't you finish the job? Don't you know we like to start from the bottom?"

Joe Blow, the tire man, muttering to himself:

"There's two ways of doing things. The right way, and our way."

C C J

Gabriel, looking fondly at his car, which the boys call a pile of junk: "Well I put new bearings in it Sunday."

Mechanic: "Does it sound any better?"

Gabriel: "I can't tell till I get a muffler for it."

C C J

Pete, making a bracket for a loose mirror:

"Got any small drills?"

Boss: "No."

Pete: "What'll I do, bite a hole through it?"

C C J

Charley asked the shop to prepare a list of telephone numbers of places downtown where they got parts in case someone wanted to get in touch with a mechanic in a hurry. No one knows how the numbers of Mike's and Joe's taverns got on the list.

C C J

City Peddle Driver: "The windows won't go up."

Boss: "Good. You'll work faster."

C C J

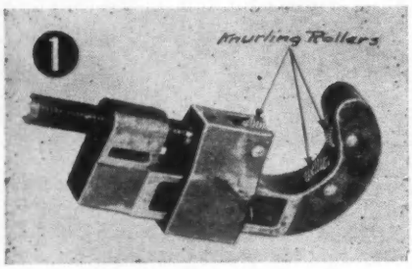
Listening to the snaky she villain on a soap opera, trying to get the other gal's husband:

1st Mechanic: "She sounds kind of nasty. Like one who would cut your throat."

2nd Mechanic: "In a nice way though."

1st Mechanic: "Yes, a little deeper."

SHOP & SALVAGE H



1. Improved Knurling Tool

by Emile Van DePutte
Pacific Gas and Electric Co.
San Francisco, Cal.

A hand-operated knurling tool has been developed which is made from a standard pipe-cutting tool. Knurling kinks are inserted in place of the cutters. The tool can be used for knurling any round shaft up to 1¾ in. The home-made tool is speedy, and the quality of the work done is equal to that done by any other method, says the inventor.

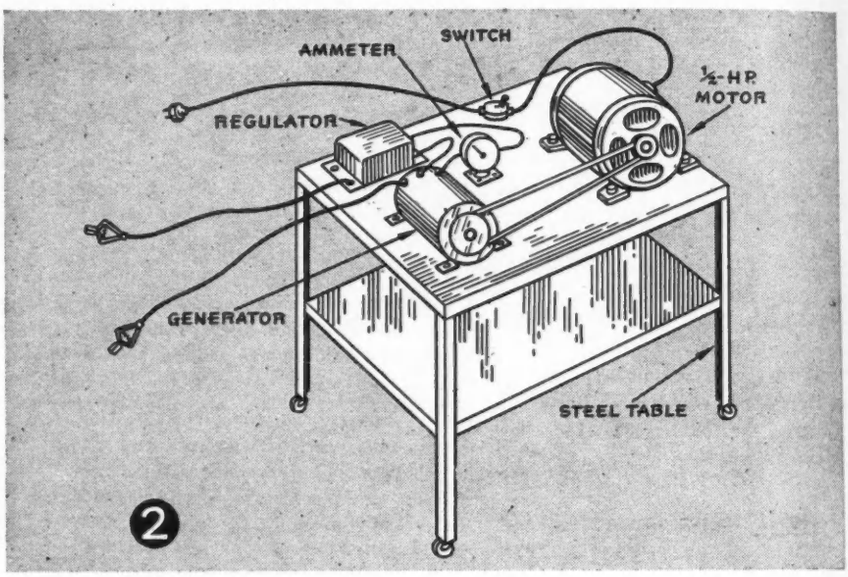
This knurling tool is particularly useful where a lathe is not available or where parts are too large to "swing" in a lathe. With it, parts can be knurled without disassembling, provided there is sufficient room to swing the tool through an arc of 125 deg. It will also knurl closer to the shoulder than most knurling tools.

It has been used to knurl front spindle shafts on automotive equipment and other worn parts such as roller bearings which are loose on the shaft. The shaft is knurled to increase the effective diameter, and the bearing is pressed in place.

2. Home-Made Quick Charger

by Robert Kachmarick
Russell Coal Co. Denver, Col.

Here is a home-made quick charger that I made for our shop. With this a half-dead battery can be charged in 15 min. In 30 min. a completely dead battery can be charged.



The necessary units are a ½-hp. electric motor which will turn up to 1725 r.p.m., a regular truck generator (we use a 1942 Ford generator), a switch block, an ammeter; a voltage regulator and a V-type fan belt.

These parts are mounted as shown in the drawing. I mounted them on a steel table with legs 42 in. high —having steel casters. It is the same level as a battery in the truck and can be wheeled about the shop.

This charger works so well that I am having two others made by our mechanics.

3. Horn Button Salvage

by B. J. Nations
Shell Oil Co., Long Beach, Cal.

We have had trouble with the horn button sticking on some of the older model Chevrolet trucks. The compressible rubber washer around the button deteriorates, and the button sticks down.

I installed two small springs, 3/16 x 1 1/16 in., over the two prongs as shown in the diagram. This saves replacing the whole unit and works as well as the new one.

4. Handy Bushing Tool

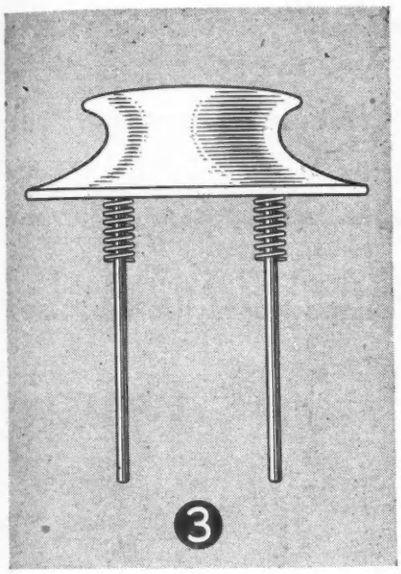
by Joseph J. Dangelo
Weir Cove Moving and Storage Co.
Weirton, W. Va.

When replacing the rubber bushings on the torque arm of the Fruehauf Tandem Trailers, we use a tool which saves a lot of time. It is a modified C clamp, used to press the bushings together.

We cut a U-shaped bracket out of a piece of sheet steel and brazed it to the stationary end of the clamp. This holds the torque arm and permits the rubber bushing to be pressed into the housing without damage to either the casting or the bushing.

HINTS

Commercial Car Journal will pay $5 for acceptable shop hints and $5 for parts salvage tips. A snapshot or a rough drawing with a simple explanation is all that is needed. CCJ will polish them for publication. Send one in today! Shown below is a typical contribution—just a rough sketch and a brief statement of the problem and its solution. See how it looks in Fig. 4. This brought Mr. Dangelo $5. There are other $5 bills waiting for your contributions. Don't underestimate your ideas. Let the editor judge.



3

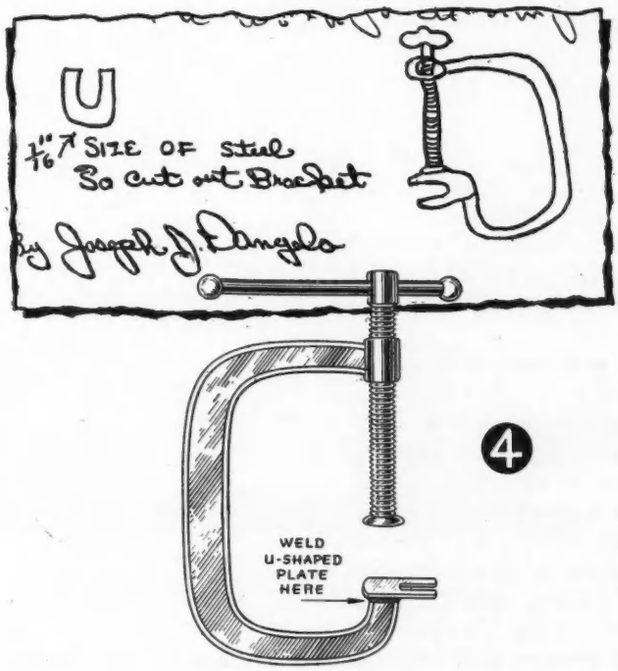
5. Home-Made Circuit Tester

by Paul Shepherd
F. C. Meyer Co., Lawrence, Mass.

Here is a sketch of a circuit tester I have used for the past seven years. When working on the light circuits, and you don't feel sure of a good ground or you want to see if current is getting to the socket, this tester comes in handy. Simply clamp the clip on the body somewhere and probe the socket or wire with the ice pick point. If you have "juice," the light will burn. A poor ground can be detected when the light burns dimly.

The tester is made from an ice pick, a length of horn wire, a 6-volt bulb and a regular battery clamp. The bulb is set in a socket, taped to the handle of the pick, and grounded to the steel point.

I know there are testers made on this principle, but this particular type seems handier to me than others I have seen.



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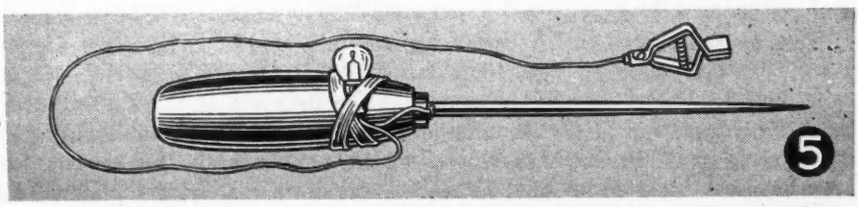


5

Reducing Maintenance by In

Fleet gains high efficiency, low maintenance cost by use of combustion analyzer and related instruments. Unnecessary repairs are eliminated, longer parts life obtained

by MATT E. NUTTILA

Superintendent of Motor Vehicles, Cities Service Oil Co.

HERE'S AN EXAMPLE

An engine was torn down for a valve repair. Incidental inspection of the rings, in service for 55,000 miles, indicated that they were usable. Shortly thereafter, the driver complained that the engine lacked power. Naturally, the rings were suspected. Instrument checks, however, disclosed that the cause was a broken spring in the carburetor.

If it were not for the checks, the author points out, a new set of rings would have been installed. "Not only would that have been expensive," he says, "but would have necessitated taking the truck out of service and all without improving the condition.

"As it turned out, the simple repair was made and the rings, which might otherwise have been condemned, were returned in service for another 35,000 . . ."

Matt E. Nuttila

TO BE of value, an idea or an experience must stand the test of time. The most valuable experiences have the habit of segregating themselves and becoming increasingly important as time passes on.

If there is one observation that sticks in my mind after 20 years devoted to repair and operation of a fleet of motor trucks, it is this: Proper diagnosis is the key to successful operation. It is just as important with a fleet of motor vehicles as it is with a doctor's patient. If the doctor has not properly diagnosed an illness or a disease, then the prescription is so much wasted effort and expense. So also with a motor vehicle; if the diagnosis of any condition which warrants complaint is faulty, then the attempt to remedy this condition is so much wasted effort and expense.

Here is an illustration. A certain vehicle (20,000-lb. g.v.w.) in our fleet had new rings installed at 60,000 miles in July, 1934. The new rings were of the steel segment type, and were a test installation. In November, 1938, after an additional 115,000 miles, the test rings were inspected, mainly because the engine was down for repairs because of a bad valve. The rings were well worn, but still had life, so were put back to continue the test because there was no excessive oil consumption or blow-by and the compression was very good. In fact, it averaged 88 lb./sq. in. compared with 95 lb./sq. in. when the engine was new.

However, the repair station manager believed the rings wouldn't last long, especially because they had been in for such a long time. A short while later the driver complained about a lack of power, and it seemed maybe

Instrumentation

Fig. 1, right. The combustion analyzer mounted on casters and used for testing engines in the shop. Below, a typical vehicle from the Cities Service fleet

we were wrong in having re-installed the rings. Because it was difficult to understand such a sudden failure, a thorough check-up of all causes was made. The compression was investigated and found satisfactory. That eliminated the rings.

A series of other checks was made without disclosing anything serious, until finally the difficulty was discovered. It was a relatively simple and inexpensive item —a broken spring in the accelerating pump of the carburetor. Had the diagnosis been conducted by less experienced personnel, undoubtedly a new set of rings would have been installed long ago. Not only would that have been expensive, but it would have necessitated taking the truck out of service and all without improving the condition.

As it turned out, the simple repair was made and the rings, which might otherwise have been condemned, were continued in service for another 35,000 miles, until the truck was finally retired in April, 1940, making a total

(TURN TO NEXT PAGE, PLEASE)

Reducing Maintenance by Instrumentation

(Continued from Page 53)

Fig. 2. The portable combustion analyzer carried on service truck. The timing light and tune-up book are also useful in road and shop service

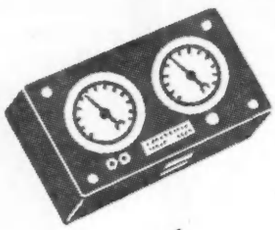


FIG. 3. FACTORS WHICH HELPED

1. Installation of test procedure based on combustion analyzer.
   - (a) Promotes clean combustion which, in turn, helps keep engine and oil clean.
   - (b) Assures top power.
   - (c) Assures top economy.
   - (d) Lessens road failures.
   - (e) Detects small defects before they cause extensive damage.
2. Change in policy from annual overhauls to overhauling assemblies individually as they need it.

   Savings from longer life between engine overhauls. The most important contribution was that tests provided an exact knowledge of the condition of an engine so that it could be continued in service with confidence without making premature repairs just to play safe.

of 150,000 miles on the test rings, and without once having the block rebored, in the 210,000 miles of stop-start delivery service. A simple test with a compression gage was the key to the solution. This is just one illustration of the value of correct diagnosis.

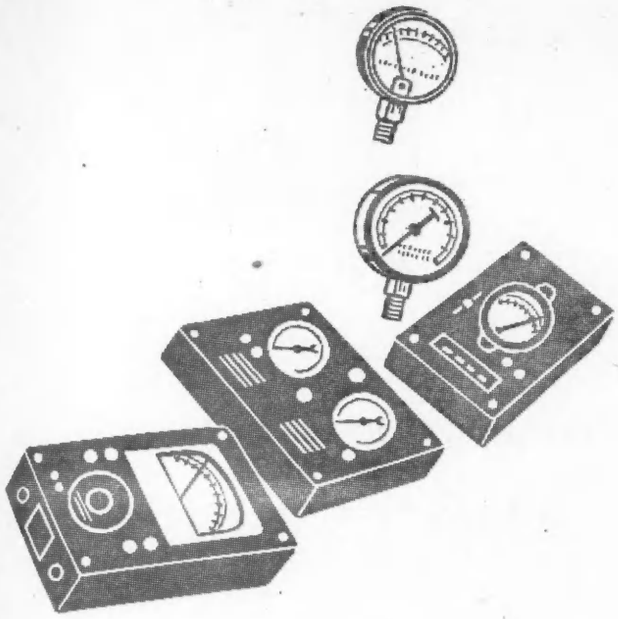
Diagnosis with Scientific Instruments

AFTER we are satisfied that proper diagnosis is of paramount importance, the next step is to do something about it, and that brings us to instrumentation and the combustion analyzer. In this connection, the important point is that without instrumentation, the tendency is to play safe and, in many cases, do unnecessary work; often for no apparent reason other than that a certain number of miles have elapsed or that a certain period of time has passed since the work was last done. As a matter of fact, in the early days, that was the case in our own fleet.

Now, with the aid of instruments, such as the combustion analyzer and the various gages and tools that go with it, an excellent diagnosis of engine condition can be made at any time. With that information available, there is the confidence to continue the engine in service until such time as periodic inspections indicate definitely that repairs are in order. In addition, the instruments show up many small defects which can be remedied before they cause trouble and, thereby, increase parts service life between major repairs.

Maintenance Cost Per Gallon of Fuel

IT IS our feeling that the combustion analyzer and the instrumentation that goes with it, are in great measure



TO LOWER MAINTENANCE COSTS

3. Determination of the effects of a change in compression on power output.

Because it was found that power output did not decrease as fast as compression loss, in per cent, any given loss in power would not falsely be ascribed to the rings but, rather, the real contributor would be hunted out. In most cases it proved to be much less expensive to repair than the cost of a ring job. False diagnosis would mean more ring jobs with enough improvement to hide the real cause, until it got serious and was finally tracked down through the process of elimination.

4. Use of special oil control rings.

Instrumentation again provided assurance that in addition to conserving oil, this special type of ring was also doing its share in helping maintain satisfactory compression.

responsible for maintenance economies accomplished in the Cities Service fleet. In this connection, it is to be recognized that there are variables involved, which make intelligent comparisons difficult. Maintenance per mile increases as a truck gets older; it is higher per mile for the bigger trucks and it is greater per mile where a lot of gear work is necessary.

It is easy to understand that the average age and average size will vary from year to year in a given fleet. The percentage of gear work might also vary. Therefore, it is obvious that unqualified "per mile" comparisons are useless because of these variables.

Fortunately, other standards are available; such as maintenance per day, per hour, per unit of product delivered, etc. But by far the most useful yardstick in a varied fleet is that based on the number of gallons of fuel consumed. It follows from the fact that wear is a result of work done which is represented by fuel used. It automatically corrects for difference in size because, although bigger trucks cost more to maintain per mile, they also use more fuel per mile. Thus, maintenance "per gallon of fuel used" remains on a comparative basis. Also, if one truck does more gear work than another, it uses more fuel—again automatically correcting for the difference. Although not perfect, it has many advantages over other standards.

In order to account for a difference in the average age of a fleet, the maintenance per gallon figure is brought to a corrected basis by dividing it by the average age. For example: If, in two separate years being compared, the maintenance per gallon was 12 cents and, in one case, the average age was 5 years and the other 6 years, the results would show as follows:

Example No.	Maintenance Per Gal. of Fuel Used	Average Age of Fleet	Corrected Maintenance Per Gallon of Fuel Used
1	$0.12	5 yr.	$.024 ($.12 ÷ 5)
2	0.12	6 yr.	.020 (.12 ÷ 6)

It will be seen that this yardstick indicates that the best maintenance job was done in example No. 2, because a fleet which was 20 per cent older was maintained for the same expense as the younger fleet. Maintenance does increase with age, at least up to the point of economical life, which in our experience is at or near the period where the chassis maintenance equals the original cost.

Considered from all angles, it is quite obvious that this corrected maintenance yardstick, based on fuel used and the age of the fleet, is exceedingly useful and dependable. It is the best gage for use in comparing maintenance within a given fleet from year to year, or in comparing one fleet with another. In this latter case, where the intensity of activity varies, the average age of the fleets is better compared in terms of 10,000 mile periods, rather than years. This procedure corrects for the situation where, for example, one fleet operates two shifts a day as against only one shift on the other.

Dollar Value of Scientific Maintenance

USING fuel consumed as a yardstick, a comparison of maintenance before and after the use of the combus-

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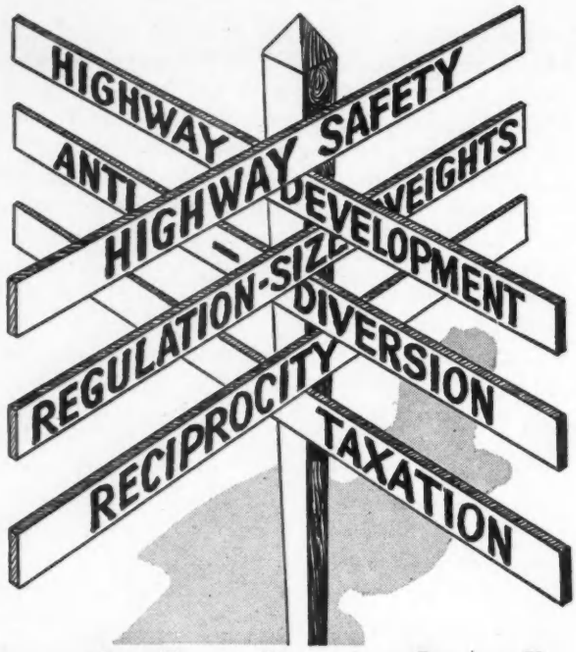
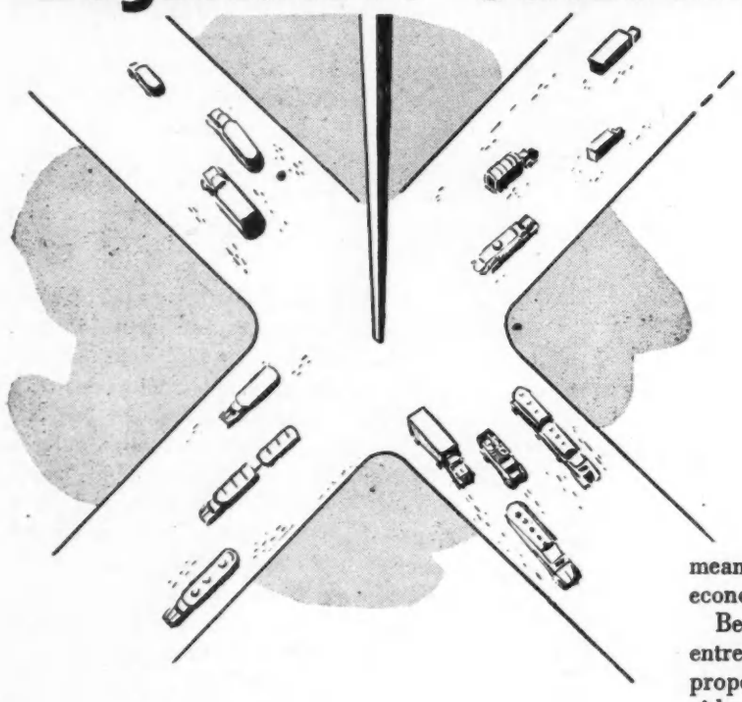


Arthur C. Butler

A number of states will consider action on roads, taxes, size and weight restrictions

Legislative Outlook For '46



"What was needed in war time should set the course of a free flow of goods in interstate commerce in peace time. Yet some states have already rescinded their emergency orders because they consider the emergency ended.

"The year 1946 might well show the degree to which nuisance legislation advocated by competitors may be expected."

by ARTHUR C. BUTLER
Director, National Highway Users Conference

As the curtain goes down on 1945, persons closely associated with highway transportation consider the outlook for legislation that may be proposed during 1946—the first full peacetime year since Dec. 7, 1941.

Only eight states meet in regular session in 1946. They are: Kentucky, Louisiana, Mississippi, New Jersey, New York, Rhode Island, South Carolina and Virginia. But informed sources believe a sizeable number of the other states will convene in special session to consider means to speed up recovery from the effects of the war economy.

Because highway transportation has become so firmly entrenched in the economy of the country, much of the proposed legislation will affect the users of motor vehicles either directly or indirectly.

The main concern of the constituent groups of the National Highway Users Conference is that highway transportation, free from monopoly, will resume the leadership that it enjoyed during the peace years between the two wars.

Member organizations of the National Highway Users Conference have arrived at clear-cut policies and a positive and foresighted program to effectuate sound laws and regulations for highway transportation in the public interest. These policies in the aggregate provide the signpost which will guide the highway users in their treatment of legislative proposals for 1946 and the peacetime years thereafter.

They deal with such basic matters as highway develop-

(TURN TO PAGE 180, PLEASE)

by **DWIGHT McCRACKEN**
Liberty Mutual Insurance Co.

TRACTOR TRAILER DRIVER TRAINING PROGRAM

1 Qualifying Road Test
A. Trainee to drive type of vehicle which he indicates he can efficiently.

2. Physical Examination by M. D.
A. Use Forms purchased from A.T.A.

3. Visual Acuity Tests
A. Color blindness
B. Glare blindness

4. Show Film, "Man Behind the Wheel."

5. Instructions on Logs and I.C.C. Regulations.
A. Use blackboard on sample trips.
B. Trainee to keep logs on balance of training period

6. Pre-driving Check on Tractor and Trailer
A. Gas, oil, water, tires, wheel lugs, rim nuts, clean windshield, clean cab, check lights, air lines for leaks.
B. Warm-up and build-up of air pressure.
C. Check on fire extinguisher, torches, fuses and flags.
D. Check for registration certificates and "Drivers' Report of Accident."

7. Hooking Up Tractor to Trailer.

8. Checking Load, Tarpaulins.

9. Actual Driving Demonstration by Trainer
A. On road covering average conditions.
B. Turns, backing, spotting, etc.
C. Driving by trainee.

10. Unhooking Trailer from Tractor.

11. Instructions on Accident Reports.
A. Use blackboards for sample accidents.
B. Explain method used by safety committee in deciding "avoidable" or "unavoidable" accidents.

12. Instructions on Paper Work Incidental to Handling Freight.

13. Tire Changing, Gas Tank Changing, Emergency Repairs, Phone Calls for Help.

14. Show Film, "Skill Behind the Man."

15. Second Driving Trip on more difficult course, backing, shifting, spotting box on left side and blind side.

16. Actual Road Trip.

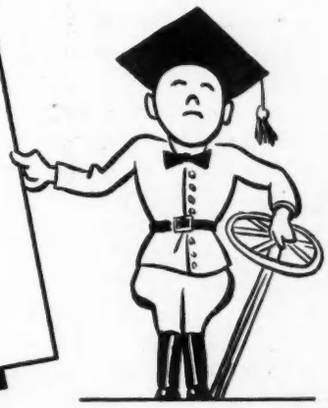
17. Final Written Examination, Including Log of Road Trip.

FIG. 1

ONE OPERATOR'S PRACTICE

This article was excerpted from a paper presented at the Seventh Annual Short Course for Motor Vehicle Fleet Supervisors, Institute of Public Safety, The Pennsylvania State College, State College, Pa. Two types of operations are discussed. Of one the author says:

"A long-haul operator pays a special training instructor $70 per week. Each trainee is paid $4 per day for his expenses. The older drivers already employed are paid their regular hourly rate, plus the $4 per day when they are brought in for retraining and upgrading."



The Cost of a Driver Training Program

THE expenses involved in conducting a driver training program will vary greatly, of course, according to how elaborate the program may be. It has been impossible to get together costs from various fleets in order to determine the average cost of such a program because most fleets do not keep separate accounts of gas and oil used for driving training purposes, accidents to driver training vehicles, tire costs and so forth. They use whatever vehicle is available at the time and the operating expenses for driver training work are lumped with the operating expenses of the fleet as a whole. Furthermore, even if it were possible to obtain separate costs, an average of these costs would not mean much because they will vary in each locality according to the wage scale, the availability of driving instructor and his price, the maintenance of the men and equipment, etc.

However, I have two examples which might be of interest—one for a long haul freight line and one for a lighter type of vehicle, namely, taxicab fleets.

In the case of the longhaul freight operator, he pays a special driver training instructor $70 a week. This man was obtained from the corps of civilian driving instructors who were training army drivers for the Ordnance Department until released a year ago. The man is a

(TURN TO PAGE 144, PLEASE)

free PUBLICATIONS

USE THE POSTCARD NO STAMP NEEDED

A selected list of the latest in literature—books, pamphlets, catalogs — chosen to help fleet operators solve maintenance and operating problems. Use free postcard

L27. Mechanic's Handbook

Here is something different in free automotive literature — a 44-page, pocket-size handbook for the automotive service man. This handy guide is filled with scores of pointers on preventive maintenance, short cuts to repair and service hints.

These tune-up hints for any make of engine will be welcomed by the mechanic. The subjects covered include: carburetor service, ignition, cooling system, bearing care, valve, cylinder head and wall, and piston maintenance. Twenty-six diagrams and cut-away views showing various assemblies and practices help to clarify the timely information presented. An alphabetical index in the front of the booklet makes selection of topics easy.

This booklet will be valuable to any shop. Veteran mechanics as well as new apprentices will find practical shop and service hints in it that will save them time and labor. Get a copy by writing L27 on the free postcard.

L28. Arc Welding Chart

A large arc welding inspection chart measuring 23½ x 36 in. has been developed by a well-known welding company and is available to the field. This handy chart can be tacked to the wall and will serve as a convenient guide and handy reference to the welder.

Nine large, clear photographs of fillet welds show the effect of improper current, speed, arc length and electrodes. Accompanying comments point out the correct procedure for making this type of weld.

Another interesting reproduction of a photograph shows the proper beads for butt weld, and easy-to-read directions give the proper welding technique for this process.

The other division of the chart is devoted to a new method of increasing the speed of welding on mild steel. Diagrams and photographs explain clearly the methods of producing full strength welds at minimum costs.

This valuable chart in full colors is available for the writing of L28 on the free postcard.

L29. Booklet on Corrosion

"Corrosion in the cooling systems of internal combustion engines may cause serious loss by damage to cylinder blocks, piping, pumps, etc., and by reducing heat transfer rates," says the author of a 16-page technical publication on corrosion inhibiting practices.

The purpose of this booklet is to show how chromates may be employed to the best advantage in various engine cooling systems. Data are presented to show the treatment of this protective film, the advantages and the effects of chloride concentration. Graphs and examples are included which will be of assistance to the engineer.

While this is a technical publication, many shop men who have made a study of corrosion problems and those who wish to gain a more technical background to cope with such problems will find the booklet valuable. A free copy is available for the writing of L29 on the free postcard.

L30. Apprentice Training Book

A comprehensive booklet on "Apprentice Training for Returning Servicemen" has been prepared by the U. S. Department of Labor in collaboration with representatives of the educational branches of the War and Navy Departments and the Veterans Administration.

This 12-page, pocket size booklet, while designed primarily for the men still in the service, is of equal value to fleet shop employers who are hiring ex-servicemen as apprentices.

Included in the information is an explanation of the financial benefits of the veterans legislation which supplements apprentice wages, qualifications required for these benefits as well as for apprentice training, procedure to follow, application forms and experience needed.

Among other data presented is a list of over 100 skilled trades in which workers are trained through apprenticeship and ten major points which identify a bona fide apprenticeship program.

This booklet is available to the fleet field upon request. Write L30 on the postcard for a copy.

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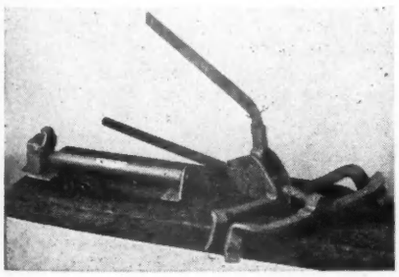
new PRODUCTS

The newest in replacement parts, accessories, shop equipment and supplies. For more details of products described or advertised, use the accompanying free postcard

P184. Universal Spreader

A new mechanically-operated tire spreader, said to be the only hand spreader on the market handling all sizes of passenger, truck tires and road grader tires, up to 18.00 x 24, and known as the Long Universal Tire Spreader is being marketed by Jack P. Hennessy Sales Co., Washington, D. C.



The lever-operated spreader exerts a pressure of 2000 lb., spreading beads up to 20 in. It can be used as a portable unit as well as a permanent unit. When used with a bench bracket, it also takes the place of a bench mandrel for repairing nail holes, cuts, etc.

The portable unit can be carried anywhere for inspection service of truck fleet tires, removing and replacing flaps and tubes, removing puncture proof and special service tubes and the removal of dirt and water.

Use Free Postcard For More Details.

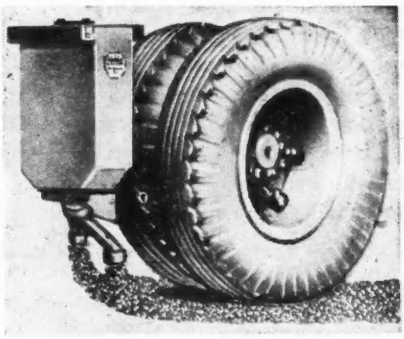
P185. Electric Road Sander

A new type electric road sander for providing traction for trucks on wet slippery roads has been developed by Rue Elston for Highway Safety Appliances, Inc., Minneapolis, Minn.

The Elston Sander consists of a hopper or container, specially constructed for the purpose, which is attached to the vehicle immediately ahead of the drive wheels.

Sand is delivered to the highway in front of the drive wheels by a rubber boot.

To use, the driver flips a switch on the instrument panel which opens an



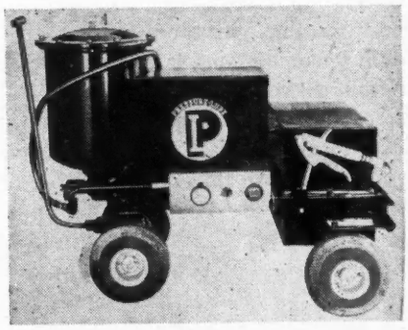
electrically controlled valve causing the proper amount of sand to be delivered instantly to the highway ahead of the drive wheels.

Use Free Postcard For More Details.

P186. Portable Greasing Unit

A new completely portable greasing unit has been developed by Pressurelube, Inc., New York, N. Y. This lubricator is said to meet any lubricating requirement and to eliminate the necessity for hand greasing operations.

The unit can be supplied with a grease gun for every purpose and is available with battery powered or gasoline driven motor. The lubricator delivers up to 12,000 lb. of



steady, consistent pressure which is instantly available to clear the most obstinate channel stoppages. Pressurelube units eliminate the frequent trouble with frozen fittings and other problems, the manufacturer states.

Compact design saves floor space and increases portability.

Use Free Postcard For More Details.

P187. Carbon Remover, Cleaner

A new decarbonizing and degreasing material has been announced by Kelite Products, Inc. This new material, Kelite Parts Cleaner, is said to be effective for the removal of grease, gums, and carbon. Carbon deposits normally diffiult to remove even by such methods as scraping or wire

(TURN TO NEXT PAGE, PLEASE)

NEW PRODUCTS

(Continued from Page 59)

USE THE POSTCARD

BETWEEN PAGES 58 AND 59

brushing can be softened by a soak in the cleaner and wiped off with a cloth.

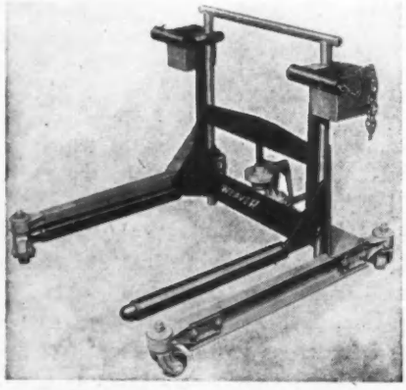
Kelite Parts Cleaner is sealed to cut down on evaporation and drag-out. It is said to be safe on all metals. It is odorless and has no flash point—will not burn or explode.

It is used for cleaning pistons, carburetors, fuel pumps, and various small parts. It is sold in an open-topped 5-gal. container, with or without parts basket.

Use Free Postcard For More Details.

P188. Truck Wheel Dolly

The Weaver Mfg. Co., Springfield, Ill., has developed a new truck and bus wheel dolly for removing and replacing heavy dual and single wheels. With this dolly one man can perform the operation of removing and replacing wheels that formerly required two or three mechanics, the company states. The handy truck is said to speed brake, tire, alignment and bearing work.



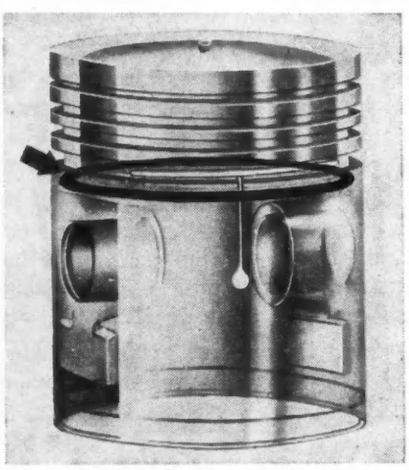
A screw jack does all the lifting. It has a 6-in. lift. The lifting arms may be lowered for picking up the wheel off the floor or may be raised under the jacked up wheel to remove it from the spindle. Replacing the wheel is done quickly and easily by raising it to spindle height and turning it on the rollers until bolt holes meet. Strong chains hold the wheel upright.

The Truck and Bus Wheel Dolly is built to handle units up to 740 lb. It is furnished complete with chain and tool holders.

Use Free Postcard For More Details.

P189. Steel-Belted Piston

An alloy piston girdled by a cast-in steel belt is now being manufactured by Thompson Products, Inc., Cleveland, Ohio, for original equipment and replacement applications. The belt, of a special alloy steel, circles the piston just above the pin bosses and is said to control the piston so that it expands at the same rate as the cast iron cylinder block



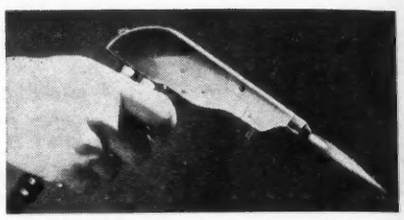
throughout the range of engine temperatures. Because of this feature, the manufacturer states that the steel-belted piston may be fitted more closely than conventional alloy types without danger of scoring or seizing. As a result, the piston is said to operate more quietly, improve oil economy and have longer service life.

Use Free Postcard For More Details.

P190. Automatic Gas Gun

Century Gas Gun is a new self-lighting, self-extinguishing acetylene torch which ignites with the pull of the trigger and extinguishes on its release. The self-extinguishing feature eliminates fire hazards caused by careless operators who are prone to leave torches burning rather than shut them off and relight when needed.

Operation of the gas gun is as easy as pulling the trigger on a revolver. Its balanced pistol grip makes it easy to handle and reduces fatigue, the



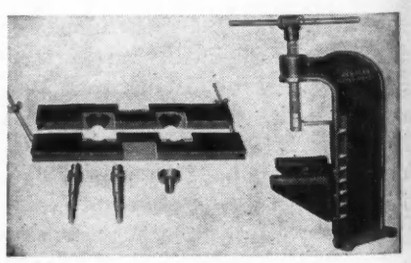
manufacturer states. Variations in flame, with a temperature range of from 950 deg. to approximately 2000 deg. Fahr. are obtained by adjusting the pressure regulator.

The gun is said to be an efficient torch for soldering, silver-soldering, fine, light brazing and lead burning, as well as aluminum soldering, sheet metal work, low-temperature welding, tinning, paint removing and general repair work. The gas gun is manufactured by Century Aircraft Co., Inglewood, Cal.

Use Free Postcard For More Details.

P191. New Puller-Press

Lanagan and Hoke, Philadelphia, is placing on the market its powerful puller-press which was developed for the Armed Forces. Made for heavy



duty work, this press is used for pulling generator and starter armatures away from end-plates and pressing new bearings into place.

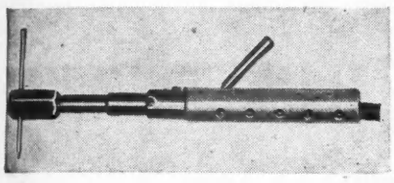
The Lanagan press, using an Acme thread, will take up to 30 tons pres-

sure. It is equipped with three different bearing drifts.

Use Free Postcard For More Details.

P192. Electrode Holder

A complete new line of air-cooled carbon electrode holders for manual

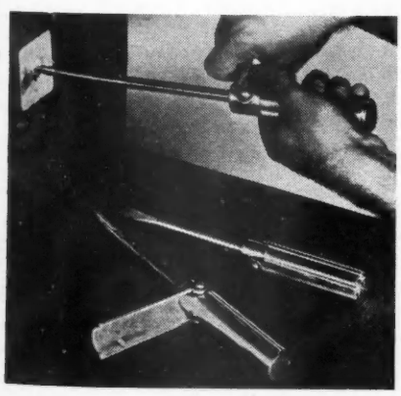


welding has just been announced by Tweco Products Co., Wichita, Kans. The line includes four sizes, 150-200-, 300-, and 500-amp. models. Positive "Hol-Grip" design with ample length and ventilation are features of this new line. Equipment is available for immediate delivery.

Use Free Postcard For More Details.

P193. New Design Screw Driver

A handy tool for auto mechanics and maintenance men is the new triple-purpose screw driver tool designed by Swallow Airplane Co., Inc., Wichita, Kan.



The screw driver has a "power-arm" arrangement that gives extra power which unlocks rusted screws an ordinary screw driver cannot budge. In reverse, "Tuffy" makes possible the last quarter-turn pressure needed to tighten screws and make them stay-put. With the power-arm folded back into the handle, it becomes a standard type screw driver.

This tool has an aluminum handle; blade is drop-forged steel and plated to ward off rust.

The screw driver is made in 5 in. by ¼ in., 6 in. by 5/16 in., 8 in. by ⅜ in. length blades.

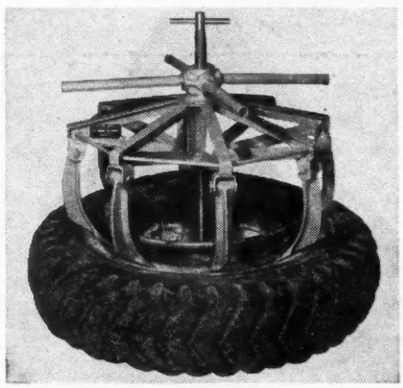
Use Free Postcard For More Details.

P194. New Tire Demounters

The Lee Engineering Co., Pawtucket, R. I., has developed a tire demounter which is said to save man-hours and prevent damage to tires and tubes, rims and wheels. Demountings can be made in a few minutes, the company states.

The Lee Presto Demounter has been used in the Armed Forces for removing tires, including those on combat and amphibious vehicles.

The demounter is available in two models—hydraulically and manually operated. Model A, hydraulic tire



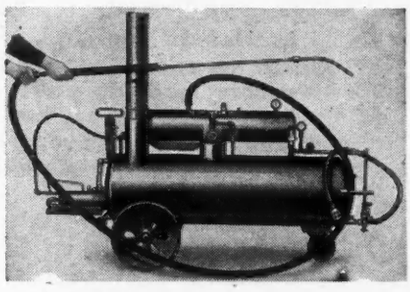
demounter, demounts all rim sizes from 7.00 x 15 to 21.00 x 24. It is of all-steel construction and is powered with a 3 h. p. electric motor. It has full hydraulic action; capacity 45,000 lb. The demounter measures approximately 5 x 3 x 4 ft. and requires operating space of approximately 8 x 10 ft.

Model B, manually operated tire demounter (illustrated) is portable and demounts all rim sizes from 7.00 x 15 to 21.00 x 24. It is of steel construction throughout and has a pressure nut of hard bronze operating on thrust roller bearing.

Use Free Postcard For More Details.

P195. Portable Parts Cleaner

The Siebring Mfg. Co., George, Iowa, manufactures a portable steam cleaning unit which removes grease, grit and grime from equipment of all kinds. It is also designed to do many other cleaning jobs for the plant or fleet shop.



The Siebring Portable Cleaner operates automatically, efficiently and safely, according to the manufacturer. It burns either oil or gasoline. Electric units are also available at this time.

The manufacturer invites trial without cost or obligation for ten days.

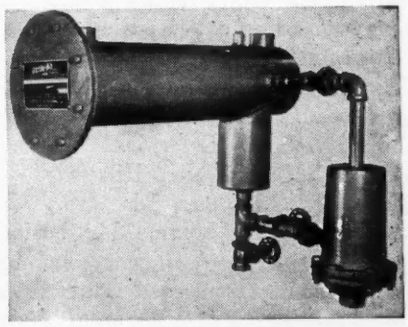
Use Free Postcard For More Details.

P196. Water Separator, Filter

The new E-25 Excel-So Water Separator and Filter developed by the Flotrol Systems, Inc., New York, N. Y., is said to be ideal for removing water, dirt, and muck from fuel oils at storage tanks, trucks, diesel engines and other places where diesel oils or gasolines are handled.

Only about 2 ft. long, the device can be mounted easily on trucks. Capacity is 25 gal. per min. Servicing is said to be easy, with no shut-down of the system necessary.

The Excel-So combines coalescing, settling, and filtering. Water in



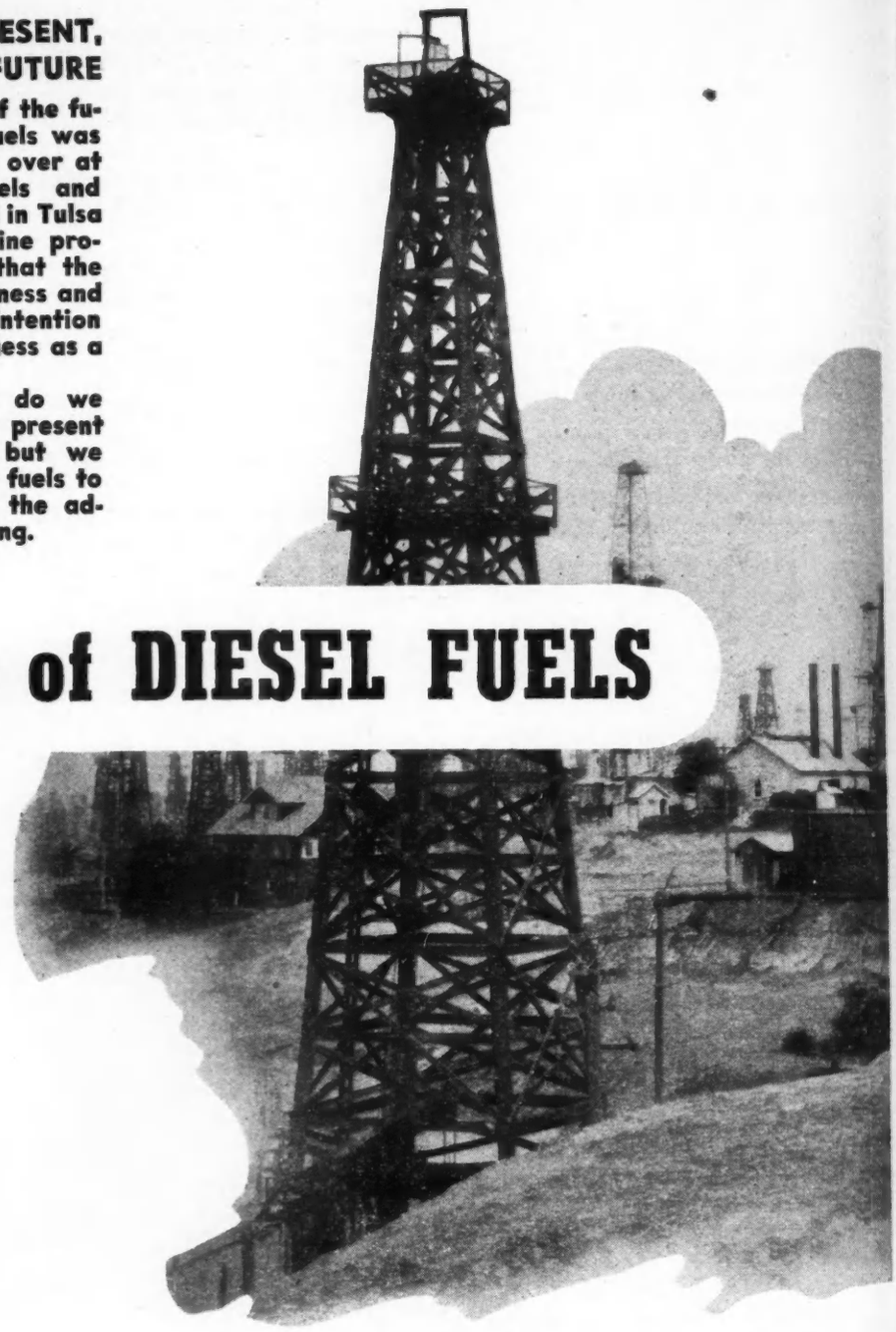
amounts up to 6 per cent of the rated capacity can be separated continuously and automatically, the manufacturer states. The evenly bedded, deep, coalescing media also traps solids, with high filtering efficiently and dirt capacity, it is stated by the manufacturer.

Use Free Postcard For More Details.

GOOD FUEL FOR PRESENT, BETTER FUELS FOR FUTURE

The whole question of the future course of diesel fuels was given a thorough going over at the SAE National Fuels and Lubricants Meeting held in Tulsa last month. Diesel engine producers made it plain that the diesel engine is big business and that they have every intention of expanding its usefulness as a prime mover.

Therefore, not only do we need good fuels up to present commercial standards but we must look to still better fuels to feed diesel engines of the advanced types in the offing.



The Future of DIESEL FUELS

JUDGING by published reports, our U. S. Navy had around 50 million horsepower in diesel engines by the end of the war. Although a goodly percentage of this is represented by large engines for submarines, mine sweepers, large landing craft, etc., the fact remains that enormous horsepower was built up in the form of automotive diesel engines such as are produced by Detroit Diesel Div., GMC, Hercules, Cummins, Buda, Caterpillar, Mack, IHC, Chrysler, Hill, Superior, and others. The Army also has many diesels.

Diesel power became big business during the war years. Its real significance has not been understood because the flow of diesel power to civilian use was practically stopped for almost four years, thus leaving the civilian inventory almost static.

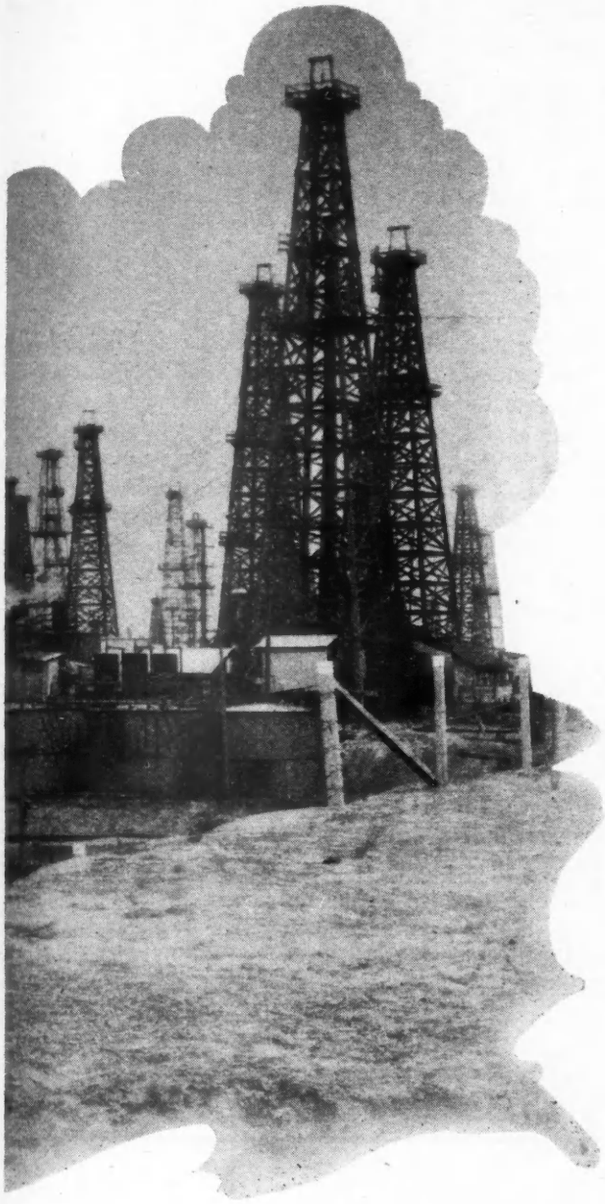
These Are Important Questions

IN THE minds of many people concerned with the operation of diesel equipment and interested in an expansion of dieselization there has arisen a question as to what will happen to diesel fuel. Will there be enough of it to meet all requirements? Will its ignition quality and specifications be suitable for high speed automotive operation? What will happen to price postwar? These are important questions to everyone concerned. The right answers have a bearing upon the future course of automotive diesel power not only for motor vehicles but for the other applications as well.

We sought the answer in a recent study made specifically for readers of COMMERCIAL CAR JOURNAL.

Little Cause for Alarm

FOR the immediate future there is little cause for alarm, as reports from many of the major producers indicate no retreat from the present specifications and marketing policy. It appears safe to assume that the fuel you have been buying and in quality suitable for the



Postwar gasoline refining may preclude by-product diesel fuel, but additives, new processes or synthetic fuels will supply growing number of diesel units

USE OF ADDITIVES WILL REQUIRE NEW IGNITION QUALITY RATING

"Test data shows that satisfactory engine performance may be obtained on selected low cetane number fuels doped conservatively with Amyl Nitrate. These low-quality catalytic base stocks are of significant importance for satisfactory operation," according to C. M. Larson, chief consulting engineer, Sinclair Refining Co.

"Future design of diesel engines may incorporate either higher compression ratios or greater supercharging capacity, perhaps with higher speeds. An additive such as Amyl Nitrate will play an important part in the design of diesel fuels adapted to the design of these engines. Of course, changes will have to be made in the specifications, particularly concerning carbon residue on 10 per cent bottoms and the initial boiling points. A new 'Power Performance' or 'Service Rating' will take precedent over cetane number. Diesel index should be dropped entirely where additives are incorporated into the diesel fuels of the future."

EYEING THE FUTURE

by JOSEPH GESCHELIN
Commercial Car Journal
Detroit Technical Editor

digestive system of automotive diesels will be available at the old stand.

But—what of the future, say after the next twelve months? That is still hazy in the minds of the major producers of diesel fuel. Probably there is no cause for alarm. Remember that war schedules are barely out of the way. No one seems to know how much aviation fuel will be required for commercial and military purposes. And no one knows yet how much gasoline will be consumed by the public and when the shift will be made to high octane gasoline for passenger cars. The answers to these questions—and others of equal importance—affect the course of refinery economics and practice and have a great deal to do with what happens to fuel for diesel engines.

Fifteen years ago when the high speed automotive diesel was but an infant in swaddling clothes, diesel fuel was a by-product of the refinery. Its utilization by fleetmen helped to swell the market for domestic furnace oil—and there was plenty to go around. Within a year from now the picture could be different.

(TURN TO NEXT PAGE, PLEASE)

The Future of Diesel Fuels

(Continued from Page 63)

You can't discount the advances in petroleum technology which have ushered the remarkable processes of thermal cracking and more recently of catalytic cracking, making possible the conversion of all of the crude into high test gasoline. In an age of specialization, if a refinery is set up to use such advanced methods there would be nothing left of a barrel of crude for products other than gasoline. Fuel oil instead of being a by-product could become a special product, taking special refinery facilities and could demand a PREMIUM price.

These are guesses at the moment. After all, a lot of things can happen to make the outlook much more rosy. For instance, there are promising developments such as the use of additives which can raise the cetane rating of a fuel consisting of a mixture of quality furnace oil and cracked fuel; and there is always the possibility that the specialists may uncover synthetic fuels far superior to present fuels for diesel engines of advanced design.

But you can't hide the fact that many informed people are quite concerned about the outlook. At the 1944 National Diesel-Fuels and Lubricants Meeting of the SAE, dealing with the question as it looked at the time, a paper on the "Outlook for Postwar Diesel Fuels" by Arch L. Foster, Petroleum Publishing Co., emphasized the following principle:

"No specification should be dictated in such terms as to prove to be an expensive limiting factor in the supply of satisfactory products for a given purpose, such as for diesel engine operation. In this wise, any of the qualities generally specified for diesel fuels may be made so limiting on fuel supply that the consumer is penalized in supply difficulties and in cost for the fuels so obtained, out of all proportion to the advantages derived from the quality so over-specified."

Diesel Engine Use to Grow

THE whole question of the future course of diesel fuels was given a thorough going over at the SAE National Fuels and Lubricants Meeting held in Tulsa last month. Diesel engine producers made it plain that the diesel engine is big business and that they have every intention of expanding its usefulness as a prime mover. The war demonstrated the unique advantages of diesel power not only for heavy-duty motor vehicles such as trucks and buses, but for tractors, for marine propulsion, and for the gamut of industrial applications such as portable and stationary generator sets, and portable power for other purposes.

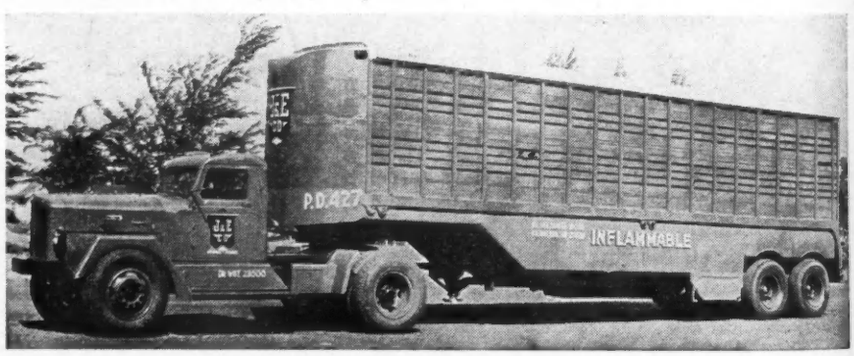
Therefore, not only do we need good fuels up to present commercial standards but we must look to still better fuels to feed diesel engines of the advanced types in the offing.

Significance of Cetane Number

THE principal paper presented at the Tulsa meeting was contributed by the Bureau of Ships, U. S. Navy. Entitled "The Significance of Cetane Number in Fuels" by Commander E. F. Griep and Lt. Commander C. S. Goddin, and offers the following set of conclusions:

(TURN TO PAGE 118, PLEASE)

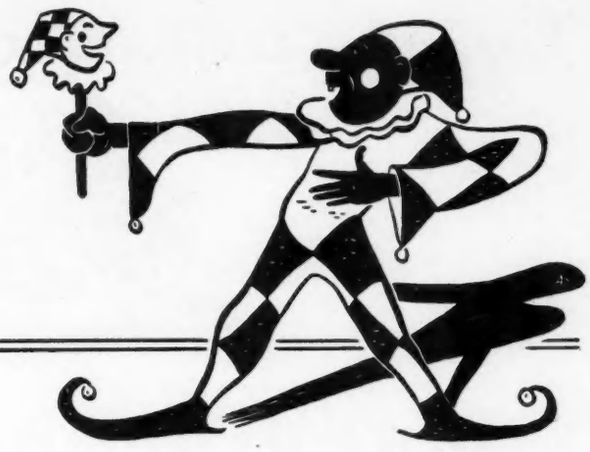
Combination Transport Hauls Gasoline or Cattle



Operating between St. Paul, Minn., and Fargo, N. D., is a unique combination trailer which is owned and operated by E. F. Crosby of St. Paul. Between the two cities, a distance of 264 miles, the trailer carries 4800 gal. of gasoline on outgoing trips and an average of 25 head of cattle on return trips. The average time required for each trip is six hours and twenty-five minutes. The compartments in the gasoline tank are divided 1550-1350-1700 gal. with 4-in. side fills and two 6-in. hose tubes. The trailer is 36 ft. long and is equipped with emergency valves and underslung tire carrier. The cattle compartment floor is tongued and grooved and specially treated for waterproofing. The tandem axle assembly uses two 17,000-lb. Timken axles with 16½ x 6-in. vacuum brakes and is equipped with Dayton wheels and 10 x 20 tires. This combination transport was built by Butler Mfg. Co. The trailer is powered with a Ward LaFrance Model D-3 tractor, having a gross vehicle weight of 35,000 lb. In operation, the load on the tractor rear axle is 23,000 lb. The tractor has a wheel base of 149 in. and is powered by a 572 cu. in. Continental engine. The frame is of "fish belly" type made of heat treated chrome manganese steel having a yield strength of 85,000 lb. The frame rails are 10 in. depth x 3 in. flange x 5/16 in. thick, with six cross members. The rear axle is Timken Model U200P, double reduction with standard ratio of 7.84:1

LAUGH IT OFF

with SKAG SHANNON



"Who are those people who are cheering?" asked the recruit as the soldiers marched to the train for overseas.

"Those," said the sergeant, "are the ones who are not going."

C C J

It was back in the days B. T. (before trucks). A driver with a rickety horse and wagon stopped in front of a bar room. As he came out wiping his chin, he met a friend.

"That horse, Bill, sure looks bad; pretty wobbly."

"Oh, he's all right—just having a run of bad luck," said Bill.

"Bad luck?" said the friend. "Whatcha mean?"

"Well," said Bill, "it's this way. Each morning I pitch a dime to see if the horse gets hay or I get beer. D' ya know, he's lost ten days straight!"

C C J

"No women, no liquor, no pedestrians," wrote an ex-truck driver from the army in Africa, adding, "I sure miss the pedestrians."

C C J

FLEET SUPER'S LAMENT: "I'VE GIVEN THE BEST YEARS OF MY WIFE TO THE NAVY."

C C J

An ex-cow poke hit the super of ABC truck lines for a job as pilot of a road unit. On his employment application, the guy from Oklahoma filled in after "Married or Single"—"Single, I guess. The judge said my wife was granted her divorce on the grounds I had only spoken to her five times since we were married." After "Remarks," he wrote—"She got the five children."

Solicitor: "I have something here that will make you popular, make your life happier and bring you a host of friends."

Claim Agent: "I'll take a quart."

C C J

New Secretary: "Generally speaking, what are priorities?"

Fleet Super: "Priorities," with an evil chuckle, "are something you must write on orders to get what there isn't anything left of."

C C J

Over at XYC freight lines there's a driver so dumb that when he called on his girl and saw the sign on the door, "Bell out of order," he went back to his room and ate the quart of ice cream all by himself.

C C J

Hercules, the colored car wash, returned home early one morning because a strike tied up the fleet. His wife was still in bed. George walked slowly through the room, then went to the bathroom and got his razor and hone. His wife listened to the rasp of the razor on the hone. "What you sha'penin' that razo' fo'?"

"Well, Sugar Puss," drawled Herc, "if them shoes under da bed ain't got feet in dem, I'se gonna shave!"

C C J

The office boy had been recently discharged from Camp Cook because of being under age. His theme song now seems to be:

She'd never really had a chance,
long years had Annie waited;
and then Camp Cook it opened up;
oh boy, was animated.

C C J

Hazel, in Parts (just married): ". . . and I asked the man in the drug store, and he said the baby tonic was for bigger and better babies, and it was good because no one had ever complained about their babies. So I bought a bottle. But, Madge, what I want to know is—who takes the tonic, Buck or I?"

C C J

SLIM, THE STOCKROOM MAN, SAYS HE IS NOW CALLING HIS GIRL "MP" BECAUSE SHE IS ALWAYS CHECKING HIS PASS.

C C J

All the Constitution guarantees is the pursuit of happiness—you have to catch up with it yourself.

C C J

First Waybill Steno: "Does your husband talk in his sleep?"

Second Waybill Steno: "No, and it's terribly annoying—he just grins."

C C J

Says the Shop Foreman: "Might as well call the Republicans the Old Maid Party—always disappointed but never giving up."

C C J

TRUCK DRIVER, HANDING OVER HIS PAY CHECK: "YOU GOT A NICE INCREASE THIS WEEK, DEAR."

C C J

Motormac, to girl friend: "Are you free this evening?"

Girl Friend: "Well, not exactly free, but really inexpensive."

C C J

And then there's the WAC, who, when asked how she liked her truck-driving job, replied: "It's not the work I enjoy, it's the people I run into."

(RESUME WORK)

WASHINGTON RUNAROUND

New Truck Prices Will be Rolled Back . . . Parts Pricing Plans . . . Surplus Parts Sale Doomed . . . Truck Production Suffers . . . Tire Rationing End Put Off . . . Pennsy Truck Study Proposed . . . Etc.

by GENE HARDY
CCJ Washington Bureau

Truck Price Roll Back

New truck prices will be rolled back under an OPA order now ready to be issued. Truck producers will be given a formula, similar to that for the automobile industry, under which they will work out their own ceilings. The order has been ready for several months, but has been delayed because of the difficulty in working out many angles peculiar to the truck industry, such as varying g.v.w., class purchasers, etc. The order was reviewed by the industry on Nov. 26, and approved. Its effective date will probably be sometime in the latter half of January. One of the problems confronting OPA is the probability that some dealers will have similar trucks on the floor bearing different prices—one price based on the new formula and a higher price on trucks being produced and delivered now.

Parts Pricing Plans

At the same time OPA will issue an order exempting truck parts from price control, when used as original equipment. This will be an overall order exempting all original equipment parts for motor vehicles. Motor vehicles, as defined in the forthcoming order, will include passenger cars, trucks, trailers, motorcycles, buses, hearses, and all other vehicles.

While replacement parts are still held under price control, OPA is considering an automatic adjustment plan, subject to review, whereby manufacturers would adjust their own ceilings.

Used Truck Ceiling

Used truck prices are now considered a dormant problem by OPA, except for ceilings on badly used Army surpluses. The pressure is off, according to OPA officials, and price control should be lifted on used trucks within the next 60 to 90 days.

Suspension of used car ceilings will depend largely on production of new automobiles, but no action is planned for the immediate future.

Without Benefit of Congress

The Nov. 15 deadline for statements in response to the list of suggested topics sent out by the House Interstate and Foreign Commerce Committee as a preliminary to the postwar transportation survey proposed by Chairman Clarence F. Lea (Dem., Calif.), has been extended indefinitely. Although the Rules Committee has not yet acted on the resolution authorizing the investigation and funds to carry it out, work on the survey moves mysteriously ahead. As for Nov. 15 some 500 to 600 replies had been received from shippers, transportation agencies, investors and economists, out of the 18,000 to 20,000 questionnaires that had been mailed by the committee.

Surplus Parts Sale Doomed

The widely heralded sale of $300,000,000 worth of surplus Army automotive parts is doomed to failure. Under this program orders were sent to Army Ordnance in Detroit and were filled from Army stocks. They were then sent to Office of Surplus Property regional offices and ultimately delivered to the purchaser. Both Army Ordnance and OSP agree that the sales program is unworkable, but for different reasons. William S. Bradley, recently resigned director of the Commerce Department, Office of Surplus Property, which has been transferred to RFC, says the program is doomed because of the difference in Ordnance numbering of parts as

(TURN TO PAGE 69, PLEASE)

WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 66)

compared with commercial numbering, Ordnance misstatements as to quantity and quality of parts available, and Ordnance failure to fill orders received.

Mr. Bradley told the Senate Investigating Committee only 10 per cent of one order for $3,500,000 worth of parts was delivered by Ordnance.

Program Wrong, says Ordnance

Ordnance officials say that basically the program is wrong, since it puts the Army in the merchandising business, which it is not equipped to handle. In addition, Ordnance is being forced to discharge personnel who are familiar with warehouse stocks, and OSP is not moving in people to take over. Finally, Ordnance admits that its numbering system is different, but says that OSP has taken too much for granted in regard to numbering, description, and quantities. Ordnance also says criticism of the orders filled is unjustified, since the first order was not received until Oct. 26, while Mr. Bradley let loose his blast on Nov. 6. By mid-November, Ordnance says 11 orders amounting to $172,000 had been filled, and 8 were in process. Delivery has not been refused on any items except 400 parts which carried unknown numbers.

RFC, which has now taken over consumer surplus disposal, admits the unworkability of the present method and expects to take physical possession of the surplus parts, disposing of them in the normal manner.

Truck Production Suffers

Civilian truck production in October totaled 39,681 units—9264 lights, 25,982 mediums, 3054 light-heavies, and 1381 heavy-heavies—an increase of 9681 over September. Military procurements also jumped from 1111 units in September to 2544 in October.

November production is expected to show a big drop. Strikes in the industry have practically brought production to a standstill. At the end of November there was very little output except from Ford, and Ford was struck a telling blow when the Kelsey-Hayes Wheel Co. notified the company that it was stopping shipment on all original equipment truck parts until OPA granted price relief or suspended the ceilings.

Tire Rationing End Put Off

Tire rationing should end shortly after Jan. 1, but the actual date will be a well-kept secret until the effective date is reached. OPA and CPA officials say production is not approaching demand, although it is steadily improving, and for this reason rationing could not be ended on Dec. 1. CPA Administrator John D. Small told CCJ that barring strikes tire production should begin to satisfy demand by March, 1946. He added that supplies of crude rubber now coming in will make for prewar quality tires in the near future.

December Tire Quotas

December truck tire quotas remain at 250,000 for sizes 8.25 and up, but sizes 7.50 and under were cut 50,000 below the November allocation to 300,000 in order to provide tires for original equipment on new trucks. This is rather ironic, since November truck production totals are expected to be negligible. OPA says the quota of large size truck tires should be ample to meet eligible rationed demand because backlogs of unfilled applications for these tires are small now. The reduction of small size truck tires, however, will force boards to screen applications carefully for tires in this category. There have been no tire bonuses since September.

3000 Trailers Monthly

Trailer production is still approximating 3000 units a month. No accurate figures are available since WPB folded up and manufacturers' reports stopped coming into Washington. However, the Census Bureau is continuing this work in trailers and trucks and monthly production reports should be available again next month. There are practically no labor troubles in the trailer industry. Tires are the most important bottleneck item with steel sheets running a close second.

Pennsy Truck Study Proposed

Investigation of all motor trucking operations conducted by affiliates of the Pennsylvania Railroad by the ICC has been recommended in Joint Board No. 117's proposed report on seven applications of the Pennsyvania Truck Lines, Inc., for certificates of public convenience and necessity permitting extensions of operations involving substitution of truck for rail service over 23 routes between points in Pensylvania, Ohio, and Indiana. The report represents only the views of the Ohio member.

Pending such an investigation, the joint board would deny all but seven of the new certificates required. The board takes the position, also taken by 37 truckers who appeared in protest, that if the certificates were granted the competition in the short-haul field would "not be one of rail service vs. motor service as at present, but would be motor service vs. motor service. Moreover, the Pennsylvania would be in a position to offer, if the authority were granted, all motor service at rail rates, which now are lower than motor rates, and what is more important to any number of shippers, under its responsibility for the entire transportation."

Newsy Briefs

There are 64,744 trucks of all types now being held in Army Inventories. These are under the jurisdiction of Army Ordnance. . . . Rumors that Jo Roberts, recently resigned chief of the OPA Automotive Price Division, left his job in protest over OPA policies have no foundation. Mr. Roberts resigned because he felt his job had been completed and he also expressed a keen desire to get back to business after 4½ years of government service. . . . Guy Richardson, ODT Highway Transport Division Director, is winding up his government career as government manager of the labor-troubled Capital Transit Co. . . . The bill extending the Second War Powers Act continues the ICC emergency powers over motor carriers until June 30, 1946.

Good Heavy Duty Brakes—

Fleet Operator's Problem

Engineers say speeds, loads should be limited to brake capacity. Drums, rigging and shoes should get periodic checks. Service should include cleaning and lubrication

by PHILIP RUSKIN

MR. FLEET OPERATOR should know more about heavy duty braking than anyone else for he must live with this problem continuously and come up with the right answers, or else! Mr. Brake Manufacturer, realizing this, recently came around to talk it over with "the boys" at a regular meeting of the Metropolitan Section of the Society of Automotive Engineers in New York City. More than 350 members and their guests were present to hear what the brake manufacturers are doing to improve heavy duty braking, and to ask questions. In reality, this meeting was a continuation of the very important and informative brake meeting under the same auspices, held last May. (Reported in the August, 1945, issue of COMMERCIAL CAR JOURNAL.)

The principal speaker was Burns Dick, consulting engineer of the Wagner Electric Corp. B. E. House, chief engineer of the Bendix Products Division of Bendix Aviation Corp., delivered a paper on "Brake Design Trends." A leading discussion on the subject of heavy-duty braking problems and their solution was presented by Stephen Johnson, Jr., manager of the sales engineering department of Bendix-Westinghouse Automotive Air Brake Co.

"Neglected Child"

ACCORDING to Mr. Johnson, the braking system of the heavy-duty truck is the "neglected child" of fleet operation. Engines, tires and frames, for example, are given due consideration when it comes to loading and work, but the ability of the brake equipment to do the job is never questioned. In truth, heavy-duty brakes are simply brakes that are called upon to do heavy-duty work, regardless of their intended use as prescribed by the brake manufacturer. If operators are to be relieved of the headaches of brake trouble in heavy-duty operations, more thought and consideration will have to be given to limiting speeds and loads to the capacity of the existing brake equipment.

Mr. Johnson goes on to say, in effect, "The actual brake drum-and-shoe assembly must be just as efficient as the air supply and control mechanism. It is a common mistake to feel that as long as there is sufficient air pressure, there is adequate braking. This is not true; a fact manifested in rapid brake lining wear and in drum scoring.

"Experience shows that brake lining wear is closely proportional to the weight-area ratio. A maximum figure of 40 lb. of vehicle weight per square in of lining area is recommended. Lining thicknesses of from ½ to ¾ in.

TROUBLES ARE THE RESULT OF NEGLECT

"The braking system of the heavy-duty truck is the 'neglected child' of fleet operation. Engines, tires and frames, for example, are given due consideration when it comes to loading and work, but the ability of the brake equipment to do the job is never questioned. In truth, heavy-duty brakes are simply brakes that are called upon to do heavy-duty work, regardless of their intended use as prescribed by the brake manufacturer. If oper-

The WHY . . .

1. Higher operating speeds require increased stopping ability with safety. In addition, since heat destroys brake lining and drums, brakes must be four times better for operation at 40 m.p.h. than they were for 20 m.p.h. operation.

2. Adoption of larger section, smaller rim diameter tires has increased the cooling problem and has limited brake drum diameter.

3. Legislation limiting the overall width of commercial vehicles has made it difficult to find the required space on many vehicles for adequate brake drum and lining width.

The HOW . . .

1. Have balanced brakes which are subjected to as well-planned maintenance schedules as the engines, transmission, electrical equipment, steering and others.

2. Clean brake shoes and brake rigging thoroughly, and keep them clean.

3. Lubricate cams and cam followers at regular inspection periods with a layer of heat-resistant grease.

4. Lubricate hinge pins at regular intervals.

5. Use the same lining on all wheels.

6. Blow dust out of brake drums at frequent intervals.

7. Replace linings on all wheels at the same time or, at least replace all blocks on a given axle at the same time.

8. Turn drums often enough so that lining life and brake performance will not suffer from poor drum condition.

9. When one wheel gives repeated trouble, such as high temperature, grabbing, howling, etc., do not keep pulling that wheel to find the trouble; look at the other brake wheels. The complaining wheel is probably doing more than its share of the work.

ators are to be relieved of the headaches of brake trouble in heavy-duty operations, more thought and consideration will have to be given to limiting speeds and loads to the capacity of the existing brake equipment.

"The actual brake drum-and-shoe assembly must be just as efficient as the air supply and control mechanism. It is a common mistake to feel that as long as there is sufficient air pressure, there is adequate braking. This is not true; a fact manifested in rapid brake lining wear and drum scoring."

are in greatest favor among operators. The brake lining should be some form of molded material, not as hard as the drum, and in an easily-replaceable form. Alloyed cast iron drums of heavy construction are an absolute necessity on all commercial vehicles.

"All wheels should have braking of internal construction with hinged shoes of some type as the active elements. Two, simply and independently hinged shoes per wheel, operated by a non-floating cam, with power application outside of the drum enclosure, is the preferred construction.

"Take-up adjustments of the shoes should be simple enough so that the job can be done quickly and without specially-skilled help. There should be no loss of brake efficiency, assuming reasonable brake attention. Automatic equalization of braking effort to the brake shoes is necessary. Power braking should be used on all vehicles over 10,000 lb. total weight."

The "Why" and "How"

THE "why" of the extra demand of modern trucking for heavy-duty brakes and the "how" to accomplish the need, are reviewed above by Mr. Johnson.

Good Lining-to-Drum Contact

THE best way to lick the heavy-duty brake problem agrees Burns Dick, consulting engineer of Wagner Electric Corp., is to seek means of improving lining-to-drum application, and of maintaining uniform adjustment. The Wagner Automatic Brake-Shoe Adjuster, he says, is a long step forward in providing a means of reducing the frequency of lining replacement, and affords a better brake in the meanwhile. This device is compact and is adaptable to a variety of shoe designs.

One result of such an automatic adjuster is the ample reserve pedal travel with its use. This increases the driver's confidence as the minimum pedal travel suffices

(TURN TO NEXT PAGE, PLEASE)

Good Heavy Duty Brakes

(Continued from Page 71)

at all times, regardless of the lining wear. A more advantageous pedal to master cylinder (hydraulic) ratio is possible resulting in reduced pedal pressure. This stems from the fact that the average pedal travel is reduced with any ratio, coincident with the use of the automatic adjuster.

The more immediate purpose of the automatic adjuster is, as the name implies, a means of adjusting for lining wear so that the original clearance between lining and drum is maintained equally around the entire circumference throughout the life of the brake lining. As soon as wear takes place at any point in the lining, the mechanism shifts the lining to an "on center" position.

According to Mr. Dick, when the so-called self-centering brake is combined with the automatic brake-shoe adjuster, both the "tough" driver and the "mild" driver are completely satisfied with the resulting stability and uniformity of braking. This self-centering development was the result of thinking directed towards obtaining uniform performance with minimum maintenance.

The Wagner people conducted a series of tests to determine the answer to cam maintenance, and especially the importance of lubrication. It was found that the major cause of variable brake output is principally due to the "come and go" effect of lubrication on the cam faces.

Airplane Brakes Impractical

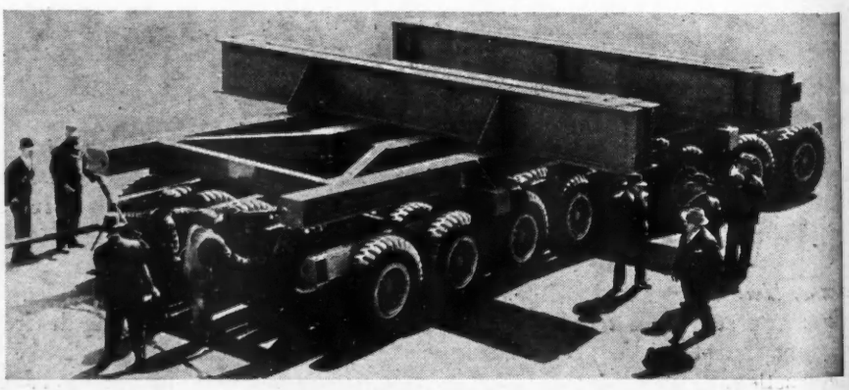
THERE has been considerable speculation among fleet operators concerning the possible application of airplane brakes to heavy-duty trucking service. It has been reasoned that if they can slow down and stop heavy bombers they should be able to easily handle heavily-loaded trucks. Unfortunately, this is wishful thinking without practical foundation. Both the aircraft disk-type brake and the expander-type brake are unsuited, in their present state of development, for application in truck service because neither can withstand sustained braking without burning out; in aircraft use, brake application lasts only a relatively short time. True, a great deal of power is absorbed during the interval of stopping a plane, but the brakes are soon released and have ample time to cool before being called upon again.

THE disks, in the disk-type brake, warp severally under high heat. Segmented disks have proved to be more satisfactory than the solid disks, according to B. E. House, chief engineer of the Bendix Products Division of Bendix Aviation Corp., and experiments are being continued to develop a brake of this type for heavy-duty truck service.

Another factor adverse to the early adoption of disk or expander aircraft brakes by truck operators is their high cost. According to Mr. House, these types would cost about three times as much as the conventional shoe-type brake.

So, it looks like we will have to struggle along with shoes, cams, anchors, etc., for awhile yet. However, the future of heavy-duty braking does not look too bad for Mr. Fleet Operator. The efforts of brake manufacturers should result in eventual elimination of many of the headaches of brake maintenance in heavy-duty service.

64-WHEELER TRANSPORTS 300 TONS



The heaviest single load ever moved on pneumatic tires,—300 tons of equipment used for a secret military project—was carried on a huge trailer having 64 wheels. Each wheel was shod with a large military truck tire made by The B. F. Goodrich Co. of Akron, Ohio. The giant trailer is more than 39 ft. long, nearly 17 ft. wide, and weighs 73 tons. Rogers Brothers Corp., a pioneer trailer manufacturer, of Albion, Pa., designed and built the vehicle in 30 days, with suggestions furnished by the Eichleay Corp. of Pittsburgh. The 18-ply, 14.00-24-in. tires, a special desert type, were made of synthetic rubber and rayon cord, each casing weighing 220 lb. according to the manufacturer. The wheels on the trailer were mounted in eight rows with eight tires in each row inflated at 39 lb. air pressure. At this pressure the trailer moved a load of 300 tons a distance of 30 miles over a temporary sandy road at a rate of thee miles per hour, with a deflection of 3/32 in. on the main members. B. F. Goodrich engineers assert that with a tire pressure of 90 lb. each, this trailer could transport a load of 556 tons over an improved road at 1 mile an hour

"Traffic gets jammed like this every day, lady —we need some wider streets!"

True enough... but better planned use of our present streets would help

IT'S only a few months since the war ended—and traffic congestion has increased enormously.

Just look around you—vehicles are jam-packed, hour after hour, on many of our city streets. Even thoroughfares that used to be fairly clear much of the time are becoming problems.

Some transportation authorities say we haven't seen anything yet. They dread the complications that may result when many thousands of new cars and trucks are added to those already in service.

Sound planning is the first step

Merely deploring traffic congestion doesn't correct it. What's needed in most communities is a workable plan—broad enough in scope to handle future as well as present vehicle use.

Widening certain streets is ideal, where feasible. Too often, though, that means razing or expensively remodeling valuable buildings—not to mention ousting occupants of long-established business locations.

However, if we can't make over our streets and increase their square footage from curb to curb, we certainly can arrange for more efficient utilization of some streets in the interest of smoother traffic flow.

Economy and safety can be helped

Frequently, it takes more gasoline to travel a few blocks on a congested street than you would use in several miles of straight-ahead driving. And you certainly run far greater risk of accidents.

Moreover, truck owners who keep careful records of each trip know that tied-up traffic means time lost which substantially increases over-all transportation costs.

Some authorities advocate the separation of types of traffic as the simplest way to relieve continuously congested areas. But there's no one remedy that applies universally. Only intensive studies of a municipality's needs can provide the basis for a really satisfactory solution.

As America's longest established manufacturer of highway transportation vehicles, Studebaker gladly contributes this advertisement to the cause of traffic improvement in the hope of encouraging active public interest.

Studebaker

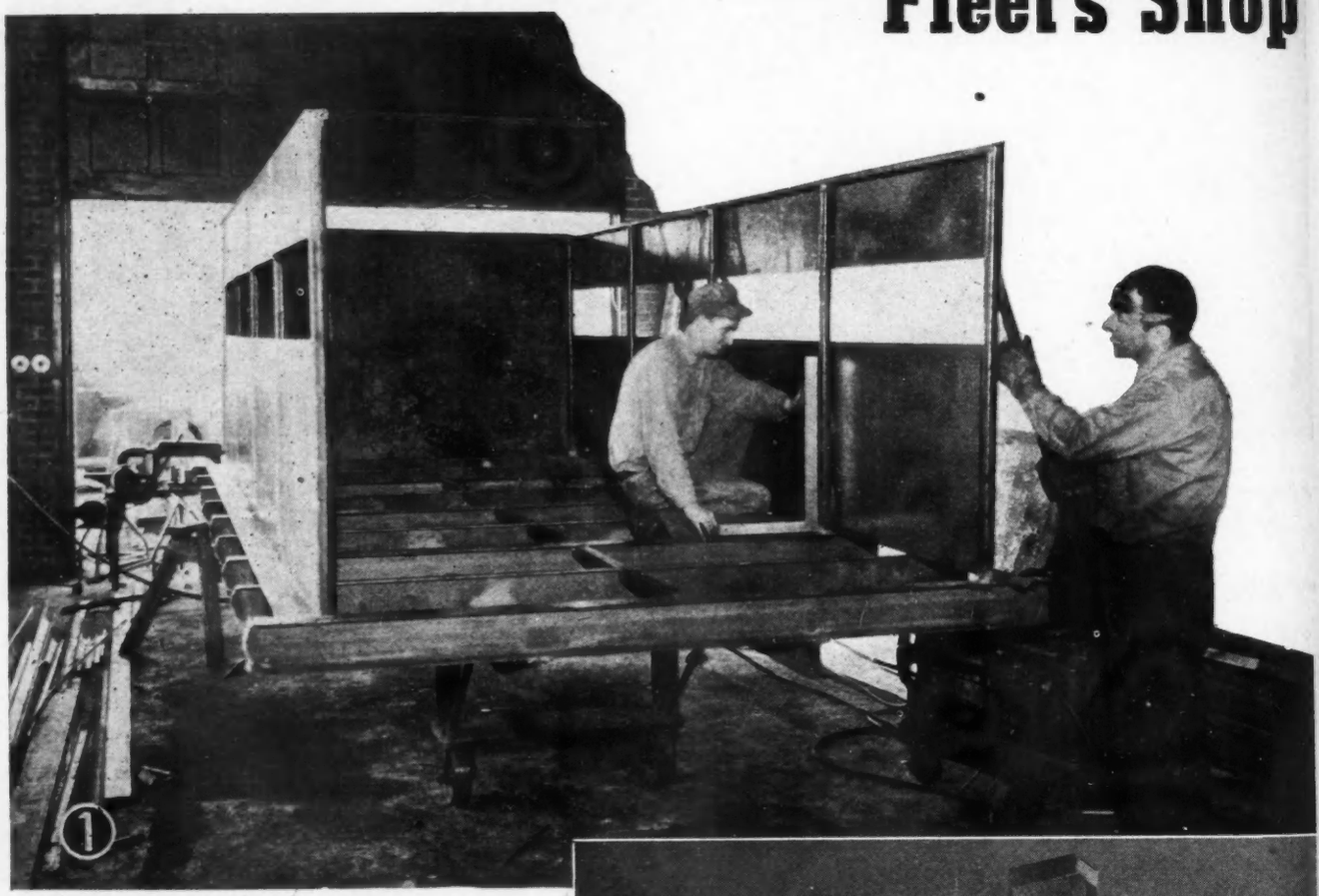
South Bend 27, Indiana, U. S. A.

PIONEER AND PACEMAKER IN AUTOMOTIVE PROGRESS

Thomas G. Chadwick

Maintenance problems and special war requirements induce common carrier to build own bodies. Construction planned for longevity, design for flexibility

Fleet's Shop



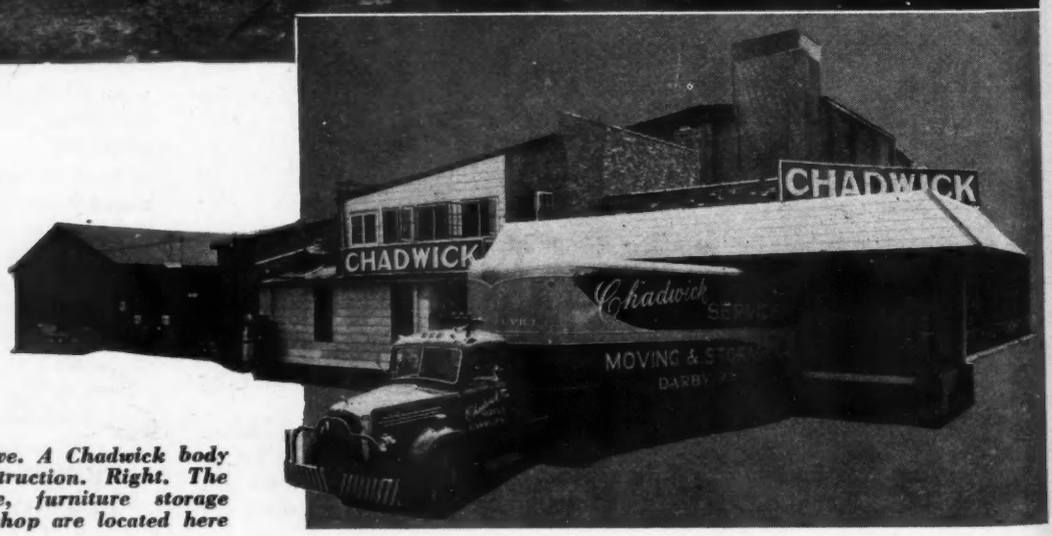
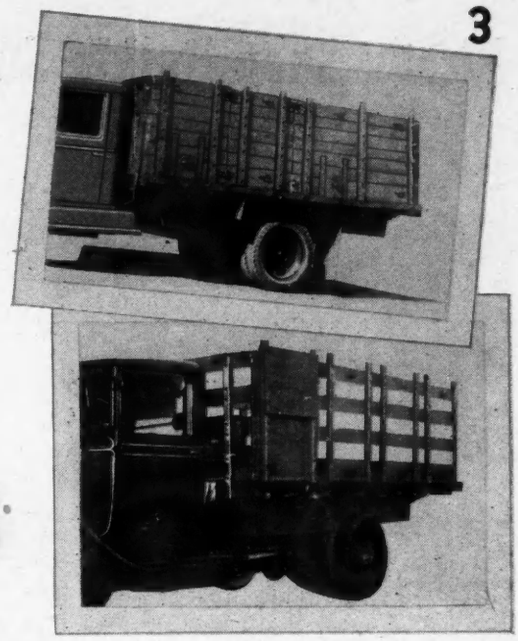


Fig. 1, above. A Chadwick body under construction. Right. The main office, furniture storage plant and shop are located here

Lumber bodies were a particular source of annoyance to this fleet operator. "If there's anything that I heartily dislike," he says, "it's the sway-back appearance that bodies of this type get after being in heavy-duty service for a while. My dislike is not only because of the run-down appearance but also because they vibrate unduly on the road and make loading and unloading more difficult."

Referring to the bodies he made, he concludes, "These bodies won't ever sag." He explains and illustrates how he achieved this result.



Builds SUPER BODIES

by THOMAS G. CHADWICK President, Chadwick Service, Darby, Pa.

ONE of my first important lessons in the operation of a common carrier business was that, while a good truck chassis is essential, the body plays the most important part in obtaining business.

The second important lesson was that the body must look well at all times—not just clean but in good repair—to keep business obtained.

In the pursuit of these objectives, I have found that really good truck bodies are hard to find. Why this should be is still a mystery to me—perhaps it's the result of the industry's competitive price system. The same condition applies to tractor cabs and, to a lesser degree, to standard trailers and semi-trailers. Of course, custom bodies can be obtained but, in my case, I like to do a little experimenting and that skyrockets the price prohibitively.

That's why I started to build my own bodies. I built—rather, rebuilt—the first body on the first truck I bought, and have been at it ever since.

I bought my first truck with a stake body. It was intended to deliver cordwood and proved very satisfactory. After the supply of cordwood was exhausted, I decided to haul coal—from the supply yards to the consumer. Of course, the stake body wouldn't do. Using the stakes, I built panels for the four sides and two partitions inside so that I could haul three tons but deliver them singly, if need be. For convenience in unloading, I built

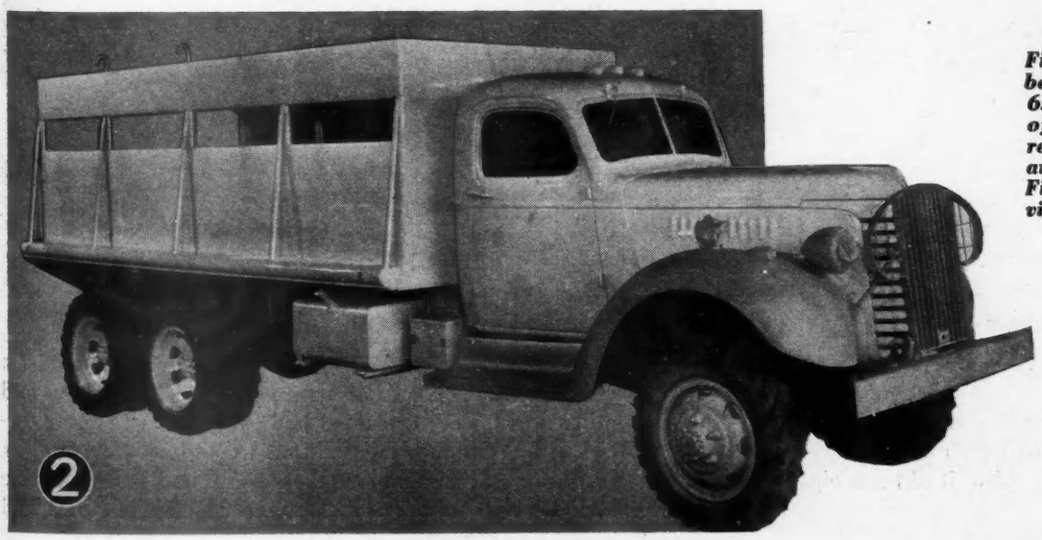


Fig. 2. One of Chadwick's bodies built upon an Army 6x6. It just received a coat of paint and soon will be ready for heavy-duty on-and-off the road service. Fig. 3, above. These are views of the first bodies built by Chadwick

Fleet's Shop Builds SUPER BODIES

(Continued from Page 75)

Fig. 4, above. Body building shop, showing three semis under construction. Fig. 5, left. Woodworking shop. Fig. 6, below. All steel heavy-duty dump body

three sliding panels, one in each section. Two of the sliding panels were located on one side and the other on the other side of the truck, as shown in Fig. 3. Side unloading proved more convenient than end unloading, as with conventional coal trucks. Also, it did not obstruct traffic in narrow streets.

But coal hauling was not a year-around job—at least not for me. During the summer I was obliged to find other uses for my trucks—I had two by that time.

Hustling around, I found that I could get jobs hauling furniture and household goods—if I had more suitable bodies. I pulled the stakes of the coal bodies, obtained

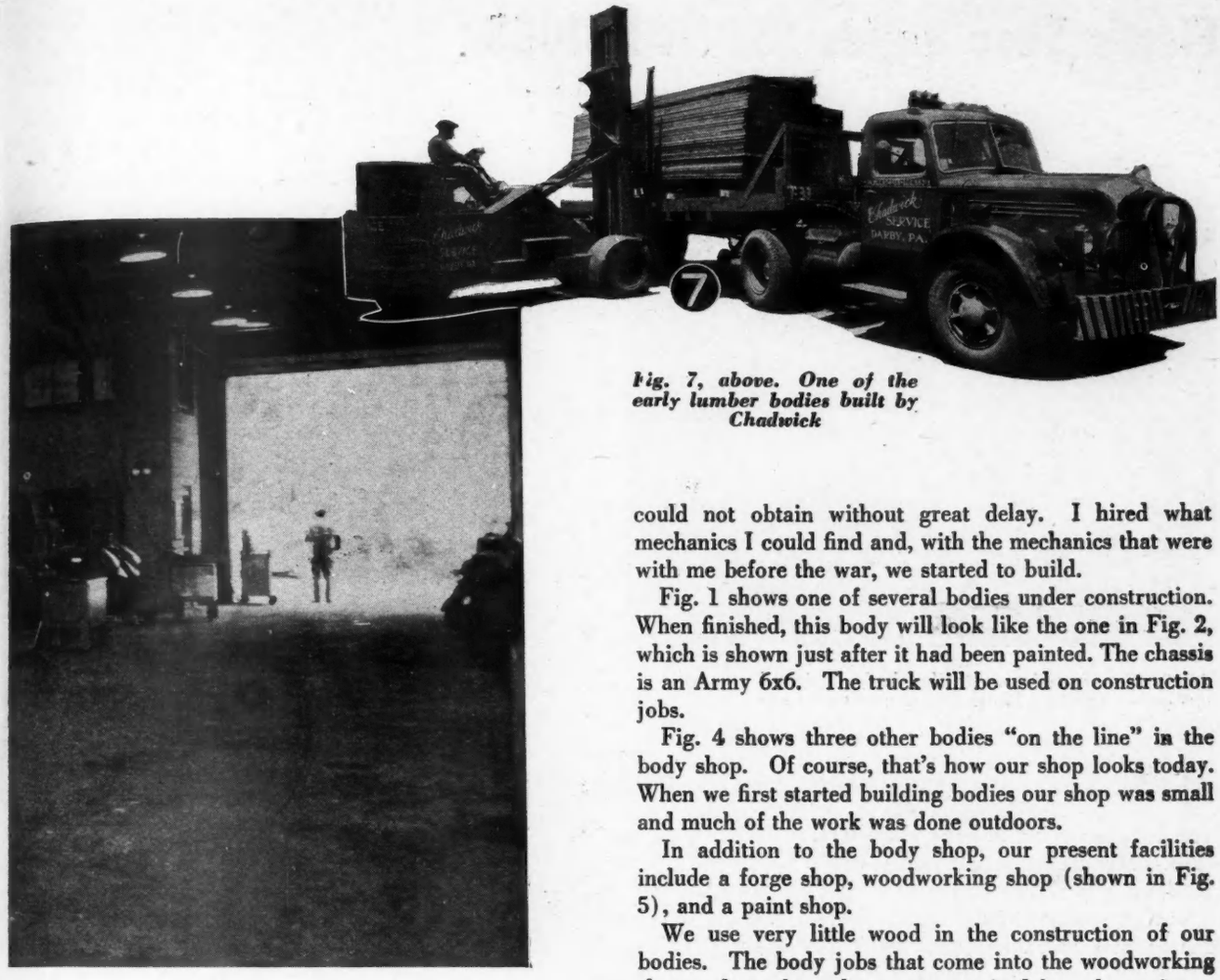


Fig. 7, above. One of the early lumber bodies built by Chadwick

another set and around them built a panel body. It looked good and met all requirements.

This experience taught me that flexibility of equipment was an essential factor in the operation of a common carrier business.

These wood bodies are a far cry from the steel bodies, all welded construction, that we're building now.

Maintenance Too High

AS MY fleet began to expand, I didn't want to build my own bodies but I was forced to. The standard bodies didn't hold up under the heavy-duty hauling business that we obtained. It became necessary to repair, patch and support them to such a degree that I resolved to build my own to keep maintenance costs down and keep the trucks on the street.

The war forced that decision. We obtained several Army and Navy contracts that required special equipment and which we could not obtain without great delay. I hired what mechanics I could find and, with the mechanics that were with me before the war, we started to build.

Fig. 1 shows one of several bodies under construction. When finished, this body will look like the one in Fig. 2, which is shown just after it had been painted. The chassis is an Army 6x6. The truck will be used on construction jobs.

Fig. 4 shows three other bodies "on the line" in the body shop. Of course, that's how our shop looks today. When we first started building bodies our shop was small and much of the work was done outdoors.

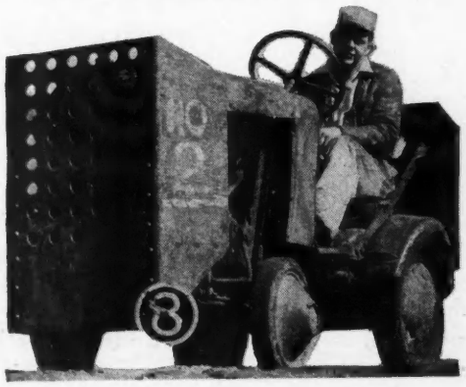
In addition to the body shop, our present facilities include a forge shop, woodworking shop (shown in Fig. 5), and a paint shop.

We use very little wood in the construction of our bodies. The body jobs that come into the woodworking shop and mostly replacements required for cab repairs.

Built to Outlast Chassis

FIG. 6 shows another type of body we built. This, too, is intended for use on construction jobs and general dump body service. No commercial body available has all the features we have incorporated in this job. No nuts and bolts or rivets are used. Every joint is welded, and more and heavier bracing is used throughout. The chassis frame is stronger than ordinarily used for this type body. We have no doubt that the body will outlast the chassis.

Fig. 8, below. This utility yard truck was made by Chadwick from the scrap pile



Special Lumber Trailers

ONE of our wartime jobs was an Army contract requiring hauling a great deal of lumber. We built our own semi-trailers to handle the work. The body shown in Fig. 7 was one of the first. One of the unique features visible in that illustration is the special trussing to prevent body sag. If there is anything that I heartily dislike is the sway-back appearance that bodies of this

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Fleet's Shop Builds SUPER BODIES

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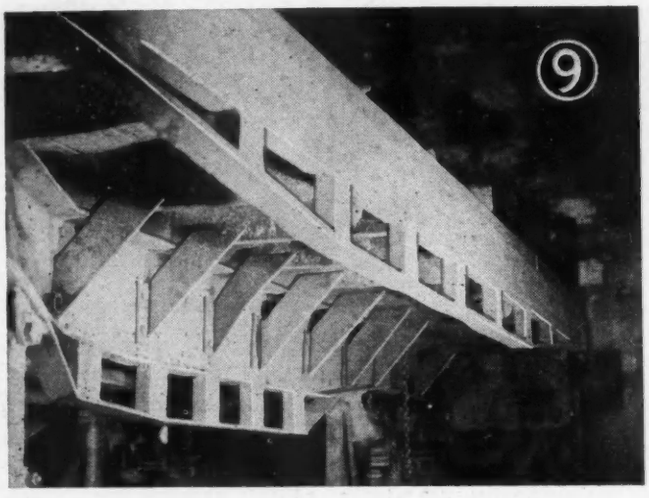

Fig. 9. Close-up of semi-trailer body designed for lumber hauling. These bodies won't ever sag

Fig. 10, top. Chadwick has built bodies for other fleets. Steel apron protects rear lights

Fig. 11, above. One of Chadwick's ingenious body designs. For hauling lumber rollers are inserted into journals at base of side frames. For other use rollers are stored in rack at front

type get after being in heavy-duty service for a while. My dislike is not only because of the run-down appearance of the body but also because they vibrate unduly on the road and make loading and unloading more difficult. These bodies won't ever sag.

It is common for bodies of this type to break just ahead of the rear springs. Our construction eliminates this possibility.

A better view of the construction details is shown in Fig. 9. Lumber haulers will agree, I am sure, that this body should outlast more than one truck chassis. We've had so many favorable comments on that body that, when the body shop wasn't too busy on our own work, we built a few for lumber dealers in our vicinity. One of these is shown in Fig. 10. Of the several features that the owner of this body likes, one is the steel apron in the rear, which not only permits the display of his name but protects all the rear lights from damage. We are using this guard on most of our trucks and find that it saves much in electrical maintenance.

Fig. 11 shows another lumber body—that is, it is so constructed that it can be used for that kind of hauling job. But, as with a number of our bodies, we have incorporated certain features that enable its use for other work. The floor of this body does not contain the channels into which the metal rollers are inserted. Instead, at each vertical support there are journals into which the shafts ends can be inserted when lumber is to be hauled. For other work, the rollers can be removed and a flat unbroken floor surface is available. When not in use, the rollers are stored in a rack located at the front of the body. Such flexibility prevents the vehicle from standing idle even for short periods.

Maintenance Economy Features

ONE of advantages of building our own bodies is that our personnel is ever alert to making construction improvements. When we get too many maintenance jobs of a certain kind, our boys don't hesitate to cure such conditions.

Take fender work, for example. To reduce such work,

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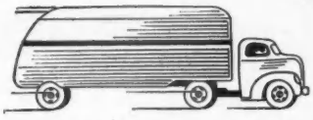
EXIDES

PROVIDE ASSURANCE OF LONGER BATTERY LIFE



More fleet owners than ever before now know that they can count on their Exides for *longer battery life* at *less cost per mile of operation.* Through four difficult war years they have seen repeated evidence of the truth, "When you buy an Exide, you buy to *last.*"

The fine performance of Exides is a result of Exide engineering and manufacturing skill, to which has been added valuable wartime experience on automotive equipment of every kind. All combine to assure maximum dependability, long-life and ease of maintenance.

If you have a special battery problem, write to Exide.

Exide
EXTRA DUTY BATTERIES

THE ELECTRIC STORAGE BATTERY CO., Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto

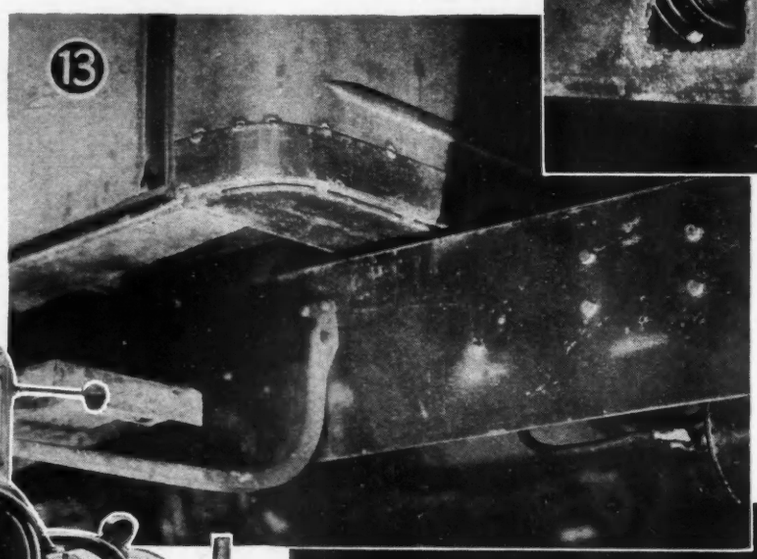
Fleet's Shop Builds SUPER BODIES

(Continued from Page 78)

Fig. 12, upper right. One of several methods to protect lights

Fig. 13, right. Tractor frames are reinforced for heavy-duty work. Cab is strengthened at base

Fig. 14, below. This channel bumper and grille guard really protects. Vertical guides help in tight spots, especially at night



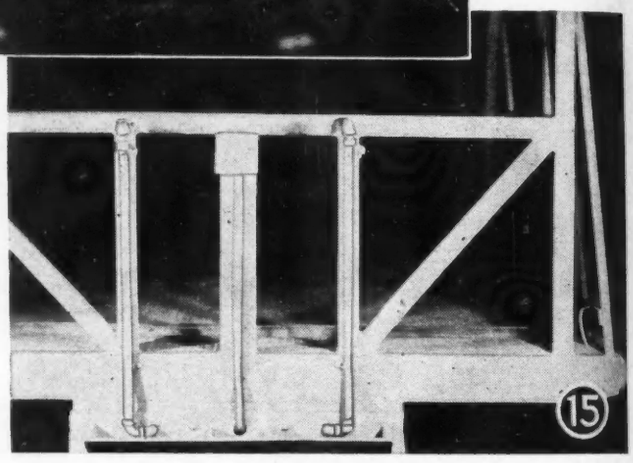


Fig. 15. Electric wire and air line damage due to snags and tangles are eliminated by piping connections as shown

we've built extra heavy bumpers with 3-in. pipe end extensions, coated with aluminum paint for visibility, especially at night. Not only do they prevent fender damage, but serve as guides for drivers, when they pull into narrow places or dark corners. Fig. 14 shows this type of fender protection. This illustration also shows a grille guard attached to the bumper. We've almost eliminated grille and radiator damage with this device.

Another type of rear light protection we build into our trucks is illustrated in Fig. 12. Shown unfinished, we simply cut away sections in the corners with a welding torch. The light is visible from the side as well as the rear.

All tractor bodies are reinforced at their weakest places. Fig. 13 shows heavy gage metal tacked into position at the bottom of the cab. In addition, the chassis frame is reinforced in several places.

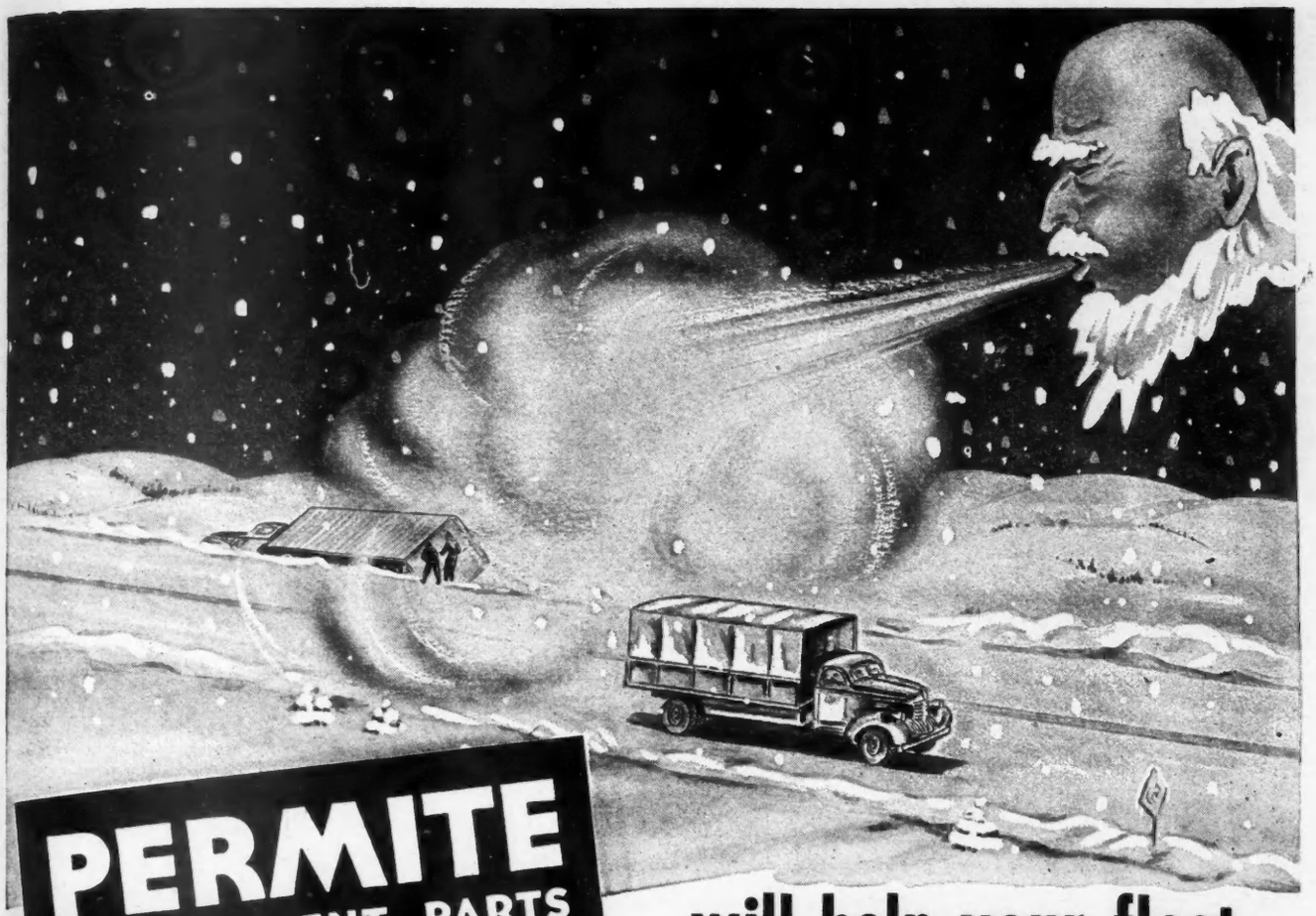
We've almost eliminated trailer air line damage by the use of metal pipes, as shown in Fig. 15. An electric outlet is shown in the center. This arrangement not only prevents breakage but also is insurance against snagging and tangling of both the air and electric lines. The bracing shown in this illustration is tubular, which is stronger than channel or angular bracing.

No Payload Loss

WE'VE been asked if all the extra heavy bracing does not affect payload carried. The fact of the matter is that conventional wood and metal bracing requires more space than metal plate. Moreover, section for section, metal bracing actually is lighter.

We've never asked for cost estimates from body builders for this type of body construction, but because of the great deal of special work involved, we're sure that we couldn't get the bodies below our costs.

Of course, we do have standard commercial bodies in our fleet—for furniture hauling and general merchandise. But, until such a time as we standardize on body types, or find something we like better than we have, we'll continue building our own bodies.



PERMITE REPLACEMENT PARTS

will help your fleet *Beat the Winter!*

• Despite Old Man Winter's extra hazards of sleet, snow and ice, your fleet must "go through". You can rely upon Permite Replacement Parts to help you with the big job of moving maximum loads in minimum time, at lowest possible cost!

Fleet owners have found that Permite Replacement Parts are built for heavy-duty wear and tear, with the extra stamina that keeps fleets moving and reduces time out for repairs.

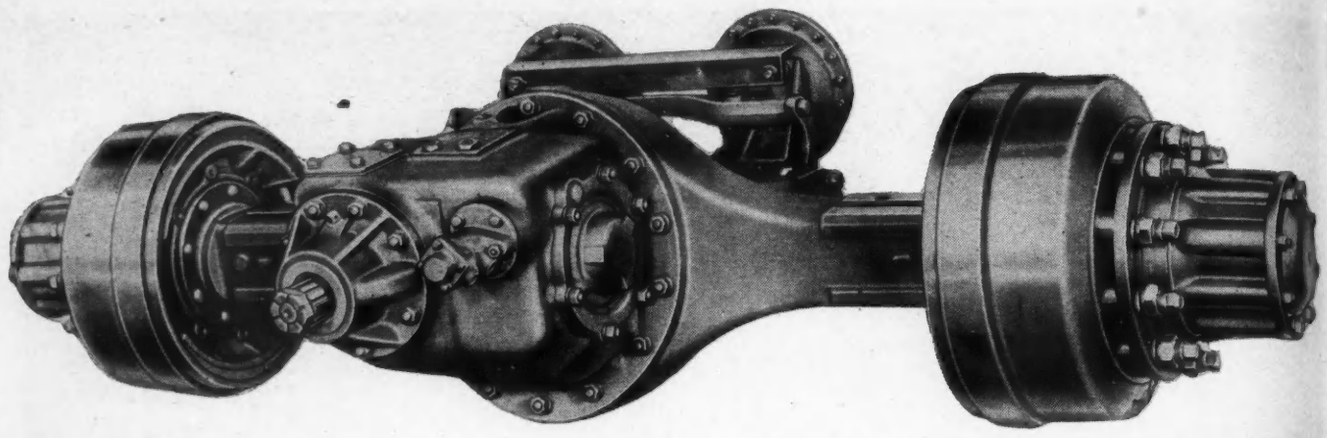
Every Permite Part is either the equal of the original part it replaces, or actually a definite improvement upon it, as a result of Permite's 25 years of experience in the automotive field.

When Permite Parts are used for an overhaul job, you can figure on new engine gas and oil economy . . . more revenue miles . . . reduced repair expense!

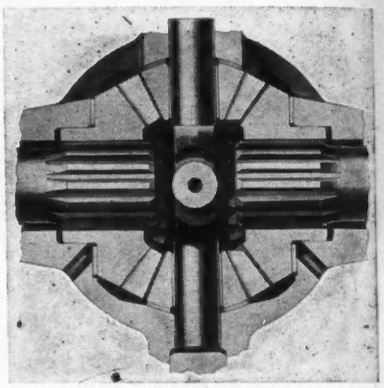
ALUMINUM INDUSTRIES, Inc., CINCINNATI 25, OHIO

The PERMITE LINE

ALUMINUM ALLOY PISTONS	VALVE GUIDES	TIE-ROD ENDS	WATER PUMP PARTS
PISTON PINS	VALVE STEM KEYS	BUSHINGS	MUFFLERS AND CLAMPS
SEMI-STEEL PISTONS	VALVE SPRINGS	WATER PUMPS	TAIL PIPES
VALVES	BOLTS	WATER PUMP REPAIR KITS	CYLINDER SLEEVES
	BOLT SETS		WET SLEEVE ASSEMBLIES



Above. The S-300 and U-300 2-speed Hypoid-Helical Double Reduction Rear Axle series are companion units to S-200 and U-200. Below. Axle shafts have 16 slant-sided splines for more strength



Timken's New Heavy Duty Two-Speed Axles

Feature special alloy gears, stronger axles and splines, improved power shift mechanism

The S-300 and U-300 are companion axles to the S-200 and U-200 Hypoid-Helical Double Reduction Single Speed Axles. Both types are interchangeable. Gear ratios available are 6.53 high—8.53 low. The track on both axles is 72 in., with 11.00 x 20 tires. New differential has a 9-16 tooth combination.

DESIGNED to give heavy-duty truck operators maximum pulling power and speed in the same truck, two new 2-Speed Rear Axles—the S-300 and U-300—are announced by The Timken-Detroit Axle Co. The S-300 Rear Axle is intended for heavy-duty hauling on highways and city streets. Torque capacity is ample for modern high power engines. The U-300 Rear Axle is for off-the-highway operations, using the same engine torque, but where still greater load-carrying capacity is required.

The S-300 and U-300 2-speed series are companion axles to the S-200 and U-200 Hypoid-Helical Double Reduction Drive Single Speed Axles previously introduced by Timken. Both types of final drives, the double reduction single speed and the 2-speed double reduction are interchangeable with each other in the same axle housing. The standardization thus available minimizes the parts inventory problem in the factory and in the field and is said to benefit builder, dealer and buyer alike.

The new S-300 and U-300 heavy-duty rear axles feature a new 2-speed Hypoid - Helical Double Reduction Final Drive. It provides two efficient gear ratios in one final drive. The first step in gear reduction is obtained through a large diameter hypoid bevel gear and pinion. The second step is selective between two sets of wide-faced helical spur gears —a "fast" and a "slow" helical reduction. Gears are of special alloy steel with teeth carburized and hardened. Gear ratios available are 6.53 high—8.53 low.

An exclusive feature of these new heavy-duty 2-speed axles is the built-in Timken Easy Power Shift for vacuum or compressed actuation. This mechanism enables the driver to select the proper axle gear ratio—"fast" or "slow"—by means of a convenient control on the dash. He may shift from "fast" to "slow" axle

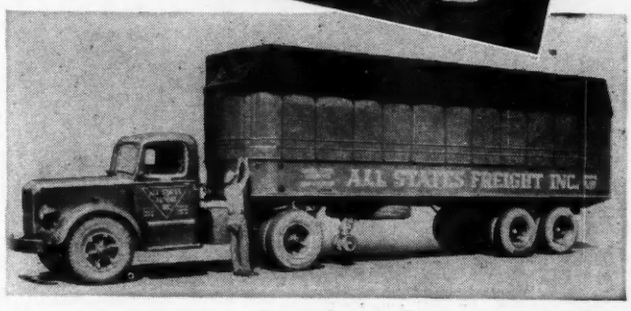
(TURN TO PAGE 141, PLEASE)

A COMPANY IS KNOWN BY THE CUSTOMERS IT KEEPS

FRUEHAUFS THAT GO PLACES!

ALL STATES FLEET COVERS 6,000,000 MILES A YEAR

Roswell B. Dorsett, President, All States Freight, Inc., Akron, Ohio, has guided this company to its present position in the industry.



TO HAUL 400 tons of freight, 18,000 miles per day—or a total of 6,000,000 miles per year—is a record any professional hauler can be proud to chalk up.

Sixteen years ago All States Freight, Inc., started in business with a small fleet of tractors and Fruehauf Trailers. Their operation pioneered the first fast motor-freight service out of Akron, Ohio, over the mountains, to the Eastern seaboard. Success was measured in terms of the company's steady and rapid growth.

Today, the All States Motor Freight line has expanded its service to include Akron, New York City, Boston, Providence, Hartford, Baltimore, Washington, D. C., Buffalo, Pittsburgh, Cleveland and Chicago. With the fleet numbering 150 Trailers (100% Fruehauf from the start) All States Trailers are common sights on the highways of 9 states.

"I've depended upon my fleet of Fruehaufs and your company's nationwide Factory-Branch Service organization to keep my loads rolling and to maintain our good reputation as a professional hauler. Much of our success lies in the dependability of these Trailers," says Mr. Roswell B. Dorsett, president of the company.

It is indeed significant that companies like All States—who depend upon their rolling equipment for their entire earnings—have started with Fruehauf Trailers and have continued to add more and more to their fleet year in and year out.

World's Largest Builders of Truck-Trailers

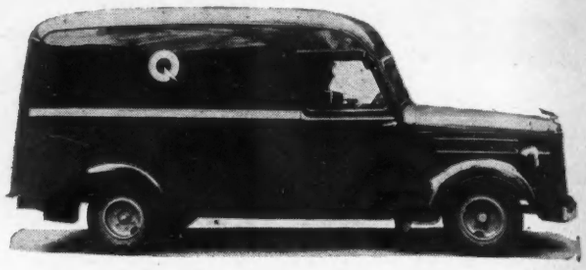
FRUEHAUF TRAILER CO. DETROIT 32

Service in Principal Cities

THIS STORY IS AMERICA—
WHERE YOU ARE FREE TO GET AHEAD.
LET'S KEEP IT THAT WAY!

"ENGINEERED TRANSPORTATION"
REG. U. S. PAT. OFF.

FRUEHAUF TRAILERS



Top. The British Q Electric 1-ton van. A 40-cell, 200 amp. hr. battery is located under hood. Max. speed, 18 to 20 m.p.h.

Left. Rear of chassis showing central motor and tubular frame construction. Truck has independent suspension front and rear

New British Electric Deliveries Have Unique Features

Two 200-amp. hr. batteries power two rear mounted motors on 1½ ton; wheels independently suspended

RECENT efforts in England to extend the use of electric vehicles for local goods transport and door-to-door delivery services will be intensified as a result of financial backing to the extent of £500,000 that has been made available to an entirely new British undertaking to manufacture, sell and service a new electric vehicle to be known as the Q Electric.

The new vehicle, prototypes of which are already being demonstrated, will be mass-produced by Steel Engineering Products, Sunderland. Sales and service will be in the hands of the Q Electric Co. with headquarters in London and service depots established all over England.

Two models are ready for production, with a useful load capacity of 1 long ton (2250 lb.) and 2½ tons (5000 lb.), respectively. The terms to be offered to prospective users are unique, so far as British products of this kind are concerned. Thus, the smaller model will be "sold" for £250 on a five-year deferred payment plan, with weekly payments of £1. The larger model will be subject to purchase payments of £2 per week to apply against a total of approximately £500.

No charge will be made for the battery or the rectifier; these will be rented or hired to the user, also for the payment of £1 per week. Free service and routine maintenance at stated intervals will be an important feature of the marketing plans, and four times a year the battery will be overhauled (renewed if necessary) and given a free full charge.

As regards constructional features, the smaller model has a "twin backbone" frame consisting of two longitudinal and parallel tubular members, with outrigger cross members welded to the tubes to support the body. There is independent suspension for all wheels, that at the front being of the "wishbone" type employing a jointed radius arm at each side above an inverted half-elliptic spring. At the rear the springs are transverse quarter-elliptics, extending from the center of the rear-most cross member, to which their butt ends are bolted. To the same cross member the casing of the 4 to 1 spiral bevel final drive is bolted, transverse Cardan-joint shafts to the rear wheels.

The electric motor is located between the parallel tubes of the frame, close to the final drive, to which it is coupled by a short flexibly jointed propeller shaft. Steering on this model is of the rack and pinion gear

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NEW BRITISH ELECTRIC

(CONTINUED FROM PAGE 84)

type. Brakes are Bendix. Wheels have 16-in. rims for 6-in. tires. The hand-operated drum controller includes a brake inter-lock system. Rheostatic braking will be optional.

Types of body for this 1-ton model will be an orthodox paneled van and a step-in (sit-or-stand drive) van for door-to-door deliveries. The load capacity in both bodies in 180 cu. ft. (90 in. long, 62 in. wide and 55 in. high).

What is described as a special lightweight lead-acid battery has been developed. Located under a hood at the front, it is of 200-amp.-hr. capacity with 40 cells. On undulating, as distinct from hilly roads, the range is said to be from 40 to 45 miles with the battery fully charged and a maximum speed of 18-20 m.p.h.

The 2½-ton (5000 lb.) load capacity model differs from the smaller type in several important respects. For example, it has a single tubular "backbone" frame; there are two motors, one at each side, each driving the adjacent rear wheel directly through worm gearing. Helical springs, instead of quarter-elliptics, are used for the independent rear suspension. The front suspension is the same as that of the 1-ton model.

The motor at each side is constructed as a unit with the worm drive casing. The front end of this unit is pivoted to an outrigger cross member of the frame, welded to the tubular backbone, while the rear (worm drive) end is bolted to the brake anchor plate through which runs a solid drive shaft to the adjacent rear wheel. No mechanical differential is fitted or required; instead, an electrical "differential" or balancing system is employed to prevent one motor being excessively overloaded in the event of the other being subject to higher electrical resistance. The same size of battery as in the smaller model is used, but is duplicated, one unit at each side of the chassis. The range on a full charge is approximately the same for both models, but the maximum speed of the 5000-lb. model is less; i.e., 14-16 m.p.h. Open truck and panelled van bodies are to be standardized.

The following are some of the specifications of both models:

Model	*1-ton*	*2½-ton*
Wheelbase	115 in.	110 in.
Tread	54 in.	59 in.
Turning circle	37 ft.	44 ft.
Mean ht. of platform	26 in.	39 in.
Chass. wght., less bat.	1300 lb.	2130 lb.
Overall length	189 in.	189 in.
Overall width	69 in.	72 in.

U. S. Tire Opens New Branches

The opening of several new branches of the U. S. Tire Division has been announced by W. D. Baldwin, sales manager, together with other appointments in the field.

James L. Grider has been appointed district manager of the new branch in Oklahoma City. Olen D. Brazil has been appointed district manager of the new New Orleans branch. J. E. Kennedy, formerly farm tire manager at the general office in New York, has been appointed district manager of the Dallas Branch. W. O. Boone has been appointed district manager of the new branch at Charlotte, N. C., and K. N. Carter has been named district manager at San Antonio.

INTERNATIONAL TRUCKS
INTERNATIONAL
BUY BONDS
WAR BONDS
fitted with HANSEN HARDWARE
for Safety and Service
No. 8 Leaf-Type All-Steel Hinge. 2-ply. 8" strap, 1¾" wide, ⅛" offset, standard. Hardened steel thrust bearings. Lengths up to 20", 3-ply. Wts., 2½ to 7 lbs.
EXTRA safety—added service—are among the features that made Hansen Hardware the logical choice for Brinks' Express armored trucks used for delivering money and other valuables. For many years their trucks have been Hansen-equipped.
The two Hansen products used on the Brinks' Express armored truck shown include: No. 60-6 Special Lock, unlocked with key from outside, and the strong Leaf-Type Hinges. Combined, they assure the utmost in safety and service.
Send for Catalog, if you don't have one, showing the Hansen line of Commercial Body Hardware and one-hand automatic Tackers.
No. 60-6 Special Lock. One piece construction. Size, 6" long, 4" wide, 1¼" striker bolt. Die-formed steel bushing. 5" inside handle. Matched rosettes. Locking device. Wt., 1¾ lbs.
A. L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE.
CHICAGO 40 ILL.
HANSEN
HARDWARE for Commercial Bodies

Lest They Forget . .

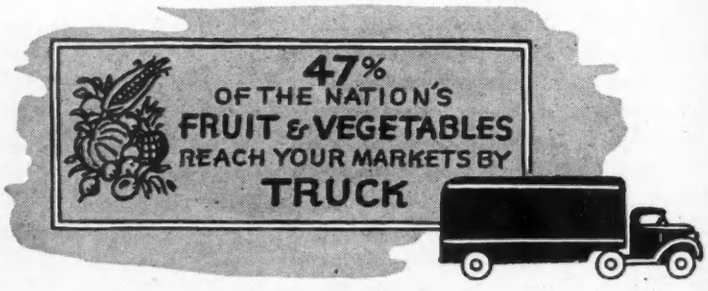
Sell Them on T

Richard T. Purdy

Truck transportation's excellent war record may be forgotten by public if industry's daily contribution is not kept in public mind. Rolling billboards can do spectacular sales job

TRUCKING has come of age. It, too, has emerged from the war the recipient of medals and praise for a job well done. Now is the time to look ahead and, in doing so, we must start with a basic assumption.

Assumptions are tricky because starting at the wrong end will bring the wrong result. But my chips are down on the assumption that the future of trucking—its success and prosperity—is linked inseparably with unselfish public service and intelligent public understanding of the value of trucks.

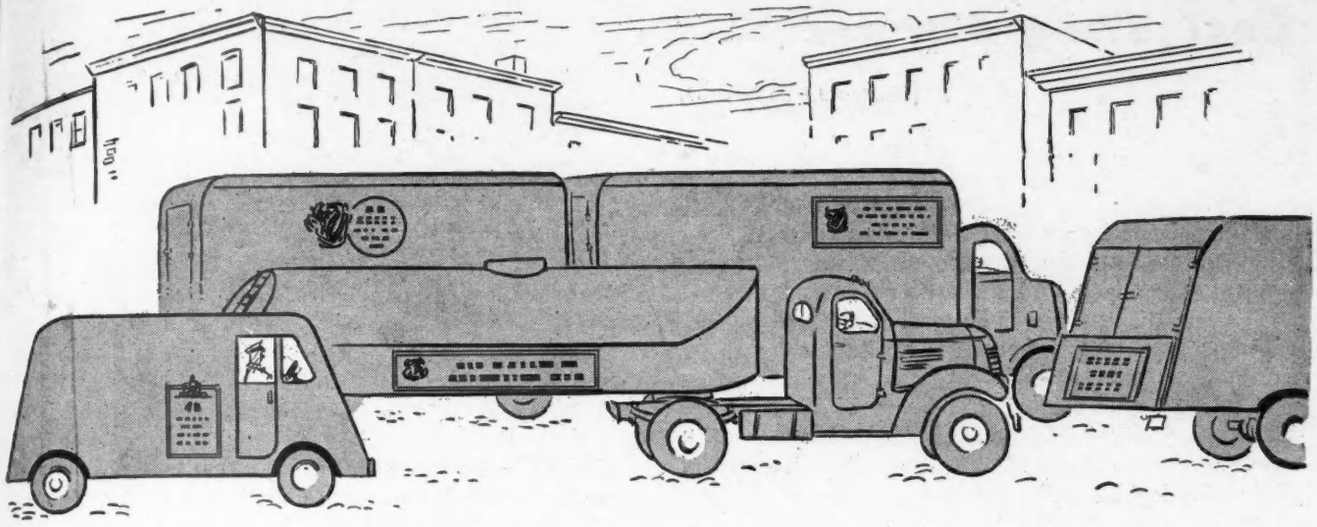


With the passing of youth, two fundamental responsibilities must be accepted by the trucking industry:

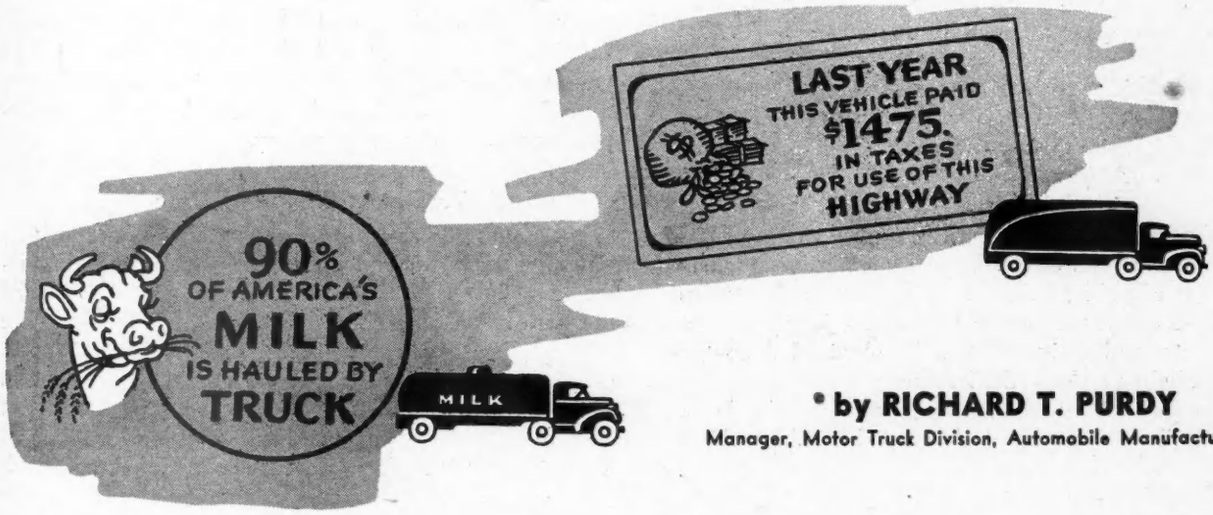
1. To serve in the public interest.
2. To develop and maintain the interest of the public.

Service in the public interest—call it enlightened self interest or whatever else you want, but without it the future of any industry is clouded.

The trucking business was born out of a need to provide the people with a faster, more flexible, low cost method of transporting goods from here to there. Motor trucks have pushed back frontiers. To economic wilderness they have brought prosperity. To millions imprisoned by flanged steel rails and navigable waterways,



Truck Transportation



• by **RICHARD T. PURDY**
Manager, Motor Truck Division, Automobile Manufacturers Assn.

they have brought freedom. They have brought the farm to the city and the city to the farm. They have made suburban life possible. They have increased real estate values. They have brought improved highways. They have made for better living.

Twenty years ago, an annual truck mileage of 10,000 to 15,000 miles was something to brag about. Today, plenty of trucks are called upon to cover over 100,000 miles year in and year out.

Twenty years ago, a truck operated only a few miles from home and "trucks" as such were used only for the roughest kind of work because they could out-perform a team of horses. Today, they interlace America's cities and farms, factories and markets, with economy, speed and efficiency that no other form of transportation can begin to offer.

Where, only a quarter of a century ago, the truck was hardly more than an emergency expedient utilized largely to pull us out of a transportation bog in World War I, today's commercial vehicle has become an economic necessity to a nation whose life it has revolutionized.

The trucking industry will continue to carve its name on the plaque recording those who have served this country well. On reaching adulthood, however, it will be held accountable, not only for better operating service, but fulfillment of broader responsibilities in the economic family. It will be expected to be fair—to bear its share of the load—to ask for no more than it is able to return —to seek no special privileges that will work to the detriment of the people. The names that withstand the rigors of competition and last the longest on our nation's plaques of achievement are those that get there by "carving" rather than by "chiseling."

(TURN TO NEXT PAGE, PLEASE)

Lest They Forget . . .

(Continued from Page 89)

Progressiveness, courage, foresight and understanding constitute the keystone of long-range survival. The slogan, "What's best for the people is best for the trucking industry," could well be adopted as your formula for dealing with issues of public concern.

Not long ago, the retiring governor of West Virginia referred to the railroad lobbys in his state as "grave diggers of progress and pallbearers of progressive legislation."

Sound Public Relations Needed

THE second fundamental responsibility to be assumed by your industry in adulthood is to develop and maintain the interest of the public. Sound public relations is what it boils down to.

In my judgment, the most effective public education can be achieved through the efforts of the operators themselves. There is a great story to tell, but the talking must be "to" the people, not "at" them. People must be told why trucks make a better life for them. Today, the story is only being whispered. It is being told among ourselves on occasions such as this, but a lot of "outside" telling must be done. It must be "shouted" for everyone to hear, and it doesn't take full-page advertisements in the *Post*, *Colliers* or *Life* to do the job.

You have service clubs—Rotary, Kiwanis, The Grange, Parent-Teacher's Associations, labor groups—and state meetings of one kind or another, all looking for speakers on subjects of public concern. Your state and national associations can assist you in promoting these speaking engagements, and assistance can be obtained from the National Highway Users Conference.

Truck operators have "acres of diamonds in their own front yard," but the largest diamond is the vehicle itself.

Anywhere in America by day and by night, big trucks ceaselessly move the goods of this nation. From coast to coast and border to border they roll, utilizing cargo space on the inside but ignoring priceless institutional advertising space on the outside. A great story to tell, with millions to hear and see, but silence, except for the roar of the engines and the whine of the tires. Silence, except for the things that cause people to dislike highway trucks such as reduced speeds, obnoxious fumes, bunching and lack of consideration for others.

Don't think for a minute that I am suggesting the omission of the operator's name, address, slogan or anything else that may help to identify his firm with the service he has to offer. On most trucks, this could continue to be given first line attention, with plenty of space left over for the job of selling trucking to the public. Some of this is being done, but the surface has not been scratched. Think of it—thousands of billboards on wheels singing the story of trucking—rolling day and night through cities, towns and countryside. Truly, an advertising man's dream!

Keep the side and the front for company advertising, if you wish, and devote only the rear of the vehicle to the institutional story. In my judgment, that is the space best suited for this job anyway. A simple statement like "54,000 of your Communities Depend Entirely on Motor Trucks" would calm the nerves and preserve the blood vessels of the person temporarily inconvenienced by a truck because it would let him know that trucks are important to our national economy.

Treatment Should be Broad

TO DO an effective job of institutional advertising requires unselfish and broad-range treatment. For instance, a hauler of one type of goods exclusively should not limit his advertising to that type only. Trucking is a system. The backbone of the truck story is made up of public benefits derived from all segments of that system. There should be nothing to prevent the hauler of household goods from plugging the theme that "49 Of Your Large Cities Receive All Their Milk By Truck."

Likewise, the operator of a general freight line can promote public appreciation of trucks as a whole by pointing out that "Trucks Haul 60 per cent Of Your Meat To Nation's Stockyards." Another could say "1943 Special Truck Taxes Exceeded Half Billion Dollars."

Others could carry such messages as the following:

"Motor Trucks Haul 128 Million Gallons of Petroleum Products Each Day."

"90 per cent of America's Milk is Hauled by Truck."

"47 per cent of the Nation's Fruits and Vegetables Reach your Markets by Truck."

"25 Million Tons of America's

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What's so Tough about This?...

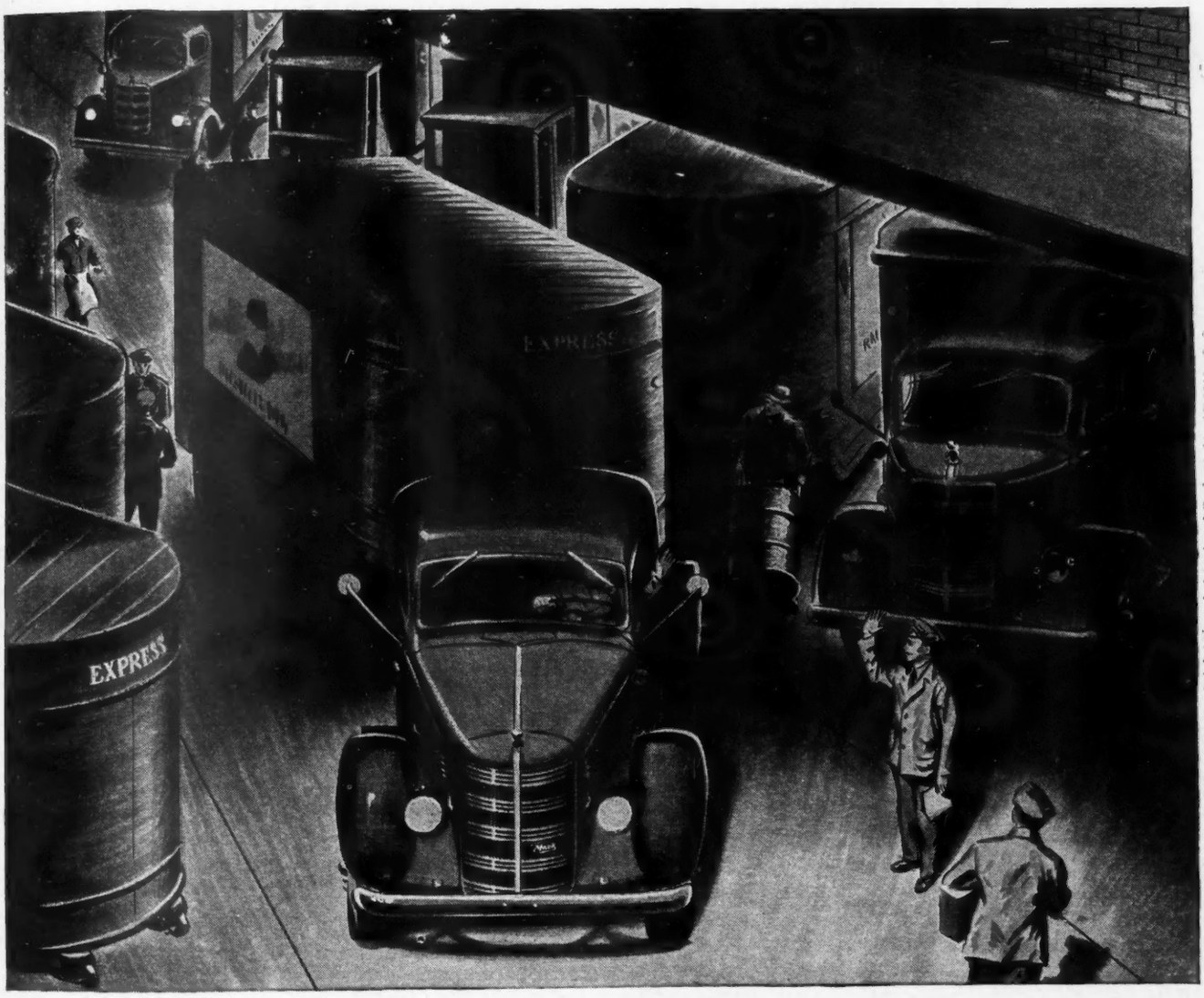
Short-haul pick up and delivery service would seem to be a pretty easy trucking job. But did you ever watch traffic at a busy express handling station?

Here you see one of the toughest jobs mechanically that a truck can take on! Just watch "No. 9" in with a big van-load from across town! Back and turn, cramp and twist, up to the loading dock. Unhook quick, cross the yard, hook onto a fresh load, and off again. *Bump* across the siding. *Thump* over the cobbles on Market. Shift down for the Big Hill grind. Hit the brakes for the red light at the corner. Now up through the gears and off again—just in time for another traffic stop...

Keep *that* up around the clock all through the year and you've got a job that's made to order for dependable Mack Trucks!

These same mechanical standards that make Macks so tough also make them dependable—for example, Mack's patented method of heat-treating axle shafts. They make Macks last longer; keep them *out* of the shop and *on* the job.

Where dependability counts, Macks rate high ... *And new Macks are now being built for qualified civilian use!*



★ BUY THAT EXTRA WAR BOND TODAY ★

Mack Trucks, Inc., Empire State Bldg., New York 1, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts.

Mack

TRUCKS

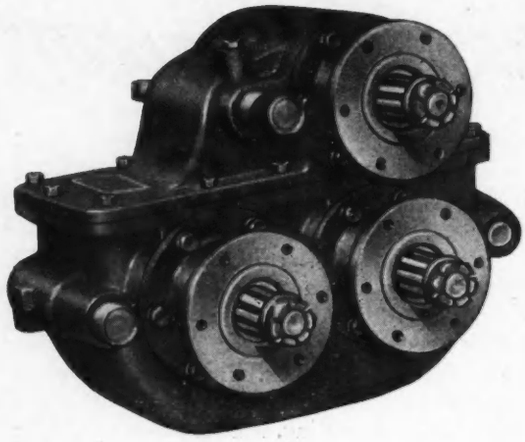
FOR EVERY PURPOSE

ONE TON TO FORTY-FIVE TONS

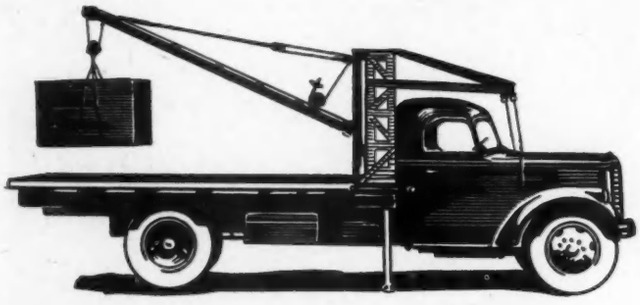
NEW Mack Trucks are available for essential civilian use. Ask for details.

THREE MODELS, THREE SPEEDS

This top mount or "Power Tower" take-off consists of a special casting incorporating the gears, shafts and bearings of the Fabco transfer case. Three models are available, giving a wide range of speeds. The TCA, seen at right, is ready for assembly.



Fabco Presents New Type Power Take-Off



Provides full engine torque at variable speeds, "standing or walking." Eliminates need for a long wheelbase

DURING the past year a new design of power take-off capable of transmitting full engine torque has been developed by the engineers of F. A. B. Mfg. Co., Oakland, Calif., for use in conjunction with the FABCO Selective Power Dual Drive. This power take-off has proven particularly acceptable where minimum wheelbase is important and where power requirements exceed the capacity of conventional take-offs mounted on the side of the main truck transmission.

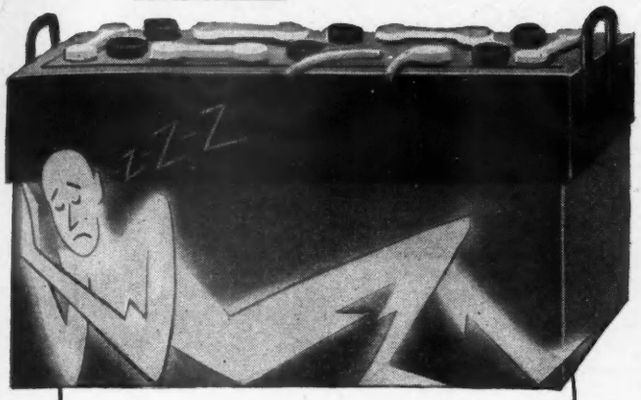
This take-off was developed for use in Geophysical Research for the Oil Industry where large numbers of FABCO Dual Drive Trucks are used in off-the-road service. Besides driving the drilling rigs, pumps and winches in these oil field exploration trucks, this power take-off is also being used for handling other truck mounted power units such as compressors, generators, welding sets, cranes, etc.

The design of this top mount, or "Power Tower" Take-off, is very simple. It consists of a special casting which incorporates the take-off gears, shafts and bearings which replaces the standard cover of the FABCO Transfer case. Three models of "Top Mounts" are available. The Model TC-75 delivers full engine power at engine speed (with the main transmission in direct drive) and with the outlet shaft running in the same rotation as the engine. Model TC-95 also operates at engine rotation but at a reduced speed of 428 r.p.m. per 1000 engine r.p.m. Model TC-105 also has an output speed of 428 r.p.m. per 1000 engine r.p.m. but at opposite engine rotation. All of the speed variations of the truck transmission, as well as the reverse, are also available to give a wide range of power take-off speeds.

The "Selective Power" feature of the FABCO Dual Drive permits the use of the "Power Towers" when the truck is either standing or in motion. They are then "standing" or "walking" towers whose uses are clearly evident and particularly valuable when coupled with the unfailing traction of the FABCO Dual Drive for off-the-road service. Wherever winches are used in heavy construction work: in oil and water well drilling; for compressor or pump drives; for crane operation by public utility or construction companies; these power take-offs,

(TURN TO PAGE 143, PLEASE)

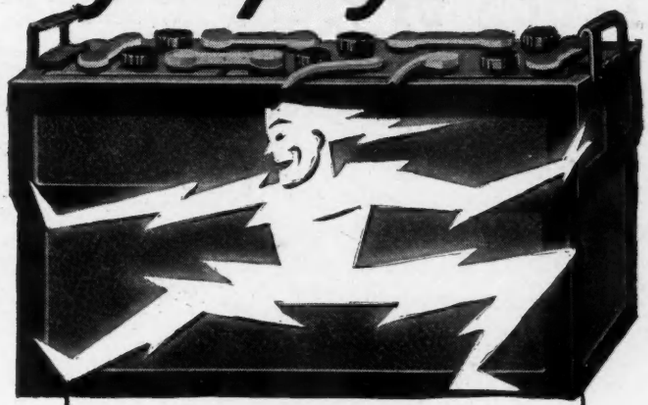
Get ALL the Power you pay for!



POWER-SAPPED

ORDINARY BATTERY

shelf-stale from power loss



POWER-FULL

GOODYEAR YKL BATTERY

kept on constant power charge

SURE — new batteries do go stale, do lose power, do fall below capacity charge — just sitting on a shelf. And such a battery may be far short of the start and stamina you need to speed today's heavy transport schedules.

To get *all* the power you pay for and need, get a Goodyear YKL — as this heavy-duty battery is sure to reach you with full-rated factory punch because it's protected by the "Power SavR." A Goodyear exclusive, this charger rack keeps YKL's on constant power feed until installed — assures you a battery with more sure starts in it to begin with!

PLUS { **CUSHIONED POWER CONSTRUCTION**

Big extra in the YKL is Goodyear's *cushioned power construction* which makes it shock- and shake-proof, gives it more "go." Felted Fiberglas mats placed between the plates protect and preserve them by *cushioning* them against road jars. That's plate protection at its peak — and plate protection is the prime requisite for longer battery life.

Remember these facts when you need a new battery with plenty of punch-and-power-starts. Get a power-*full* Goodyear YKL and be *sure* of sure starts longer.

YKL BATTERIES
—for buses, trucks, tractors

POWER SAVR

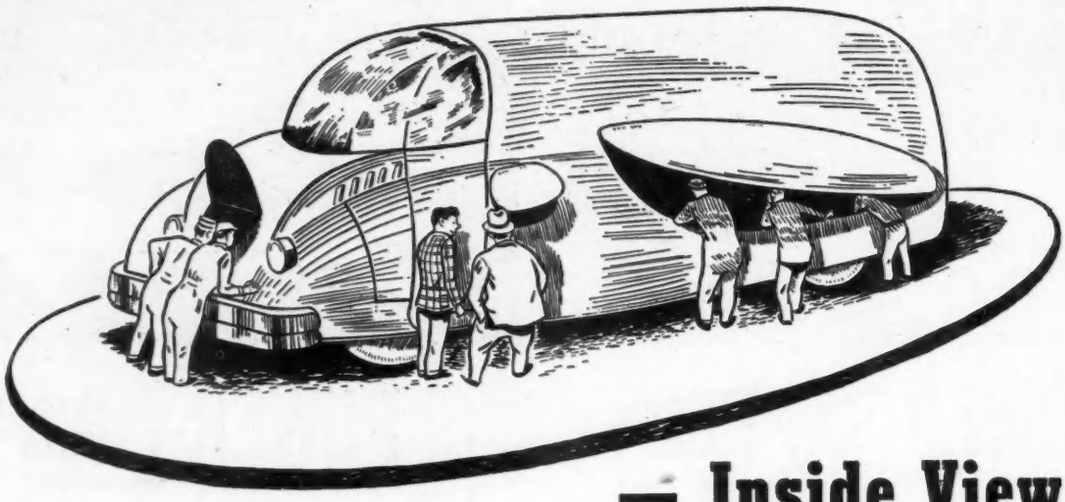
— Goodyear's exclusive charger rack, keeps batteries automatically at power-peak with a continuous trickle-charge until installed. That's why they have more "go" to start with — stay road-ready longer in your truck!

YKL—T.M. The Goodyear T. & R. Co.

GOODYEAR

THE GREATEST NAME IN RUBBER

Truck of the Future



— Inside View

Improvements and new developments for the real postwar truck

by FRED B. LAUTZENHISER
Consulting Engineer in Motor Transport
International Harvester Co., Chicago, Ill.

The author is skeptical of revolutionary designs for the present. Predicts use of lighter metals, high compression engines, wider application of automatic and power units. Thinks cooling, springing, steering, braking will be improved and says the truck of the future will be equipped with torque-converters, fluid drives.

THE motor transport industry was one of the most important factors contributing to our successful completion of World War II. Truck operators and millions of co-workers engaged in the motor transport industry throughout the length and breadth of this nation answered Hitler's challenge by keeping trucks rolling under most adverse circumstances, thereby preventing a slowdown in our life-line of distribution. Poor Mr. Hitler made a sad mistake when he attempted to wage a blitz war based on motor vehicle operation against a country with more motor vehicles and a greater capacity for producing motor vehicles than any other country in the world.

F. B. Lautzenhiser

Were it not for the fact that the American automotive industry which was accustomed before the war to turning out four million motor vehicles a year stood ready to convert to the production of war vehicles almost overnight we would probably still be at war. During this war the American motor truck manufacturing industry has been producing military vehicles and parts at the rate of two and one-half billion dollars worth per year, or two and one-half times the total value of trucks and parts produced during the highest peacetime year. More than 200 different types of truck transport and combat vehicles, at sometime or other since the war started, have been on the production lines to meet the needs of combat and supply units of the United Nations.

Highway transportation, because of its flexibility and adaptability, will continue to be basic to all other forms of transportation as it has been for the last several thousand years. It will still be the only type of transportation which can originate at your front door and terminate at the front door of your relative a thousand miles away. All other forms of transportation must originate at a terminal—a railroad station, an airport, or wharf—and end at a similar terminal.

(TURN TO PAGE 163, PLEASE)

Your Evansville, Ind., Ls Jim* — is GEORGE K. SPECHT of the Hercules Body Company

George K. Specht, President of the Hercules Body Company

Dating back to 1902, when it got its start manufacturing buggies and wagons, Hercules Body Company, of Evansville, Indiana, has seen the inception of the Motor Truck Industry—and grown with it.

George Specht, president since 1936, is likewise intimately active in the business and able to bring an intimate understanding to his customers' problems. Ls Jim to you, George Specht can meet all your individual requirements for all metal truck bodies, yet give you the advantages of Ls mass production.

Assembled from panels stocked locally, Ls bodies are quickly delivered. They weigh as much as 1,000 pounds less than ordinary bodies of the same dimensions. Ls bodies reduce operating costs and permit increased pay loads. Owners of national fleets can buy identical Ls truck bodies for their branches from any of the builders in the nation-wide Ls organization.

Ls truck and trailer bodies are available in both steel and aluminum. Check their possibilities with your local Ls body builder today. For his name, write to **The Lindsay Corporation, Adams-Franklin Bldg., Chicago 6, Ill.; to 60 E. 42nd St., New York 17, N. Y.; or to Lindsay Structure (Canada) Ltd., Dominion Square Building, Montreal.**

* *There are 143 "Ls Jims" throughout the country. Do you know your local Ls builder?*

"Jim," a neighbor of yours, was chosen an Ls body builder because of his ability to handle your requirements intelligently—whether you need one or a thousand truck bodies. Your "Jim" knows local conditions and regulations thoroughly and can design a body to meet your exact individual requirements. Unhampered by shipping problems, he makes speedy deliveries and does a factory job of repairs overnight.

LINDSAY Ls STRUCTURE

U.S. Patents 2017629, 2263510, 2263511
U.S. and Foreign Patents and Patents Pending

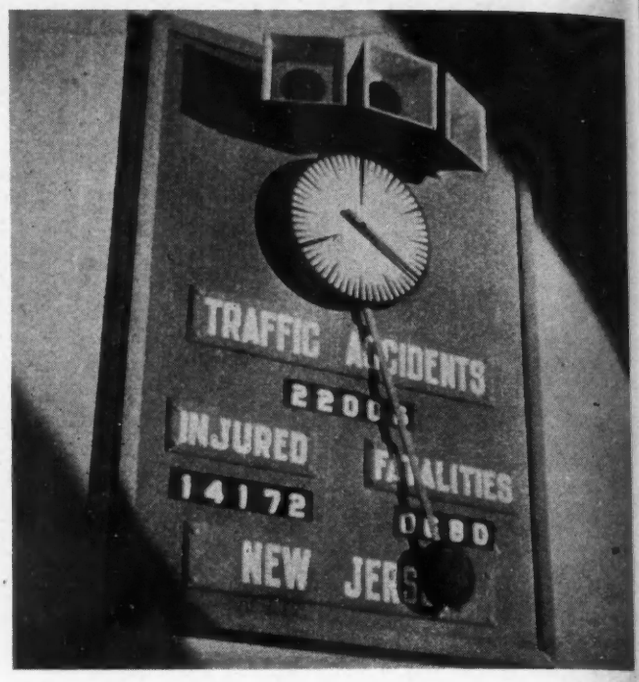
DISTRIBUTORS AND DEALERS THROUGHOUT THE COUNTRY

NATIONAL SAFETY COUNCIL SAYS THIS FILM IS TOPS

"Postwar planning everywhere has the main objective of speeding up, making safer vehicular operation on our roads and highways . . . However . . . much still depends upon the individual driver and his ability and willingness to avoid accident through knowledge and skill.

"This film has been judged the best traffic safety film of the year by the Motion Picture Committee of the National Safety Council, and has been called one of the best pictures on the subject ever made by traffic experts who have seen it.

"It is not a 'horror' film. It depends, rather, upon example and factual presentation of the common driver and pedestrian faults which cause most accidents . . . In the main characters represented, the truck driver can see himself and many of his driving habits every working day and also see how to correct them."



This recorder, one of the shots from the film, clocks accidents; dramatically emphasizes the price of carelessness

New Jersey Prepares Film to Cut Highway Accidents

by LYNE S. METCALFE

Shows causes of highway accidents, methods of avoidance. One driver gets "his" and faces heavenly judgment of record

THE commercial vehicle fleet is going to confront the same increased street and highway accident hazards that will make postwar private driving more dangerous than ever—unless steps are taken to achieve better control and better highway facilities.

The addition of millions of new vehicles to the traffic flow, on streets and highways, already inadequate prior to the war, is going to make necessary intensified training in safe driving practices if a fleet is to be operated efficiently and with a minimum of accident loss.

Postwar planning everywhere has the main objective of speeding up, making safer vehicular operation on our roads and highways. And while more, wider and better roads, signal systems, lighting and signs will help the common carrier, much still depends upon the individual driver and his ability and willingness to avoid accident through knowledge and skill.

One step in this direction has just been taken by the State of New Jersey, whose Department of Motor Vehicles has had the Jam Handy Organization make a sound motion picture, "X Marks the Spot," designed to show all drivers of road and street vehicles the causes of most accidents and methods of avoidance. So successful has this film proved in New Jersey that Commissioner of Motor Vehicles Arthur G. Magee has decided to release copies or prints (on outright purchase basis) to any commercial or private vehicle group interested for integration with, and supplementary to, present highway safety educational programs or for use as the basis for such a program. This film, incidentally, has been judged the "best traffic safety film of the year" by the Motion Picture Committee of the National Safety Council, and has been called "one of the best pictures on the subject ever made" by traffic experts who have seen it.

This film has wide showings in New Jersey theaters and is now being shown to groups in industry, transportation, schools, colleges and civic associations. It is not a "horror" film. It depends, rather, upon example and factual presentation of the common driver and

(TURN TO PAGE 98, PLEASE)

User Satisfaction Starts Here...

ABOVE: SOLDERING TUBES AND FINS OF RADIATOR CORES . . . careful inspection, to meet quality standards at every step in manufacture, from materials selection to final test, means maximum heat exchange efficiency and trouble-free performance in the user's service. Long Manufacturing Division, Borg-Warner Corporation, Detroit and Windsor.

LONG

CLUTCHES • RADIATORS • OIL COOLERS

NEW JERSEY SAFETY FILM

(CONTINUED FROM PAGE 96)

pedestrian faults which cause most accidents and which are the same everywhere in the country. In the main characters represented the truck driver can see himself and many of his driving habits every working day and also see how to correct them.

Briefly, the story relates the traffic experiences of a typical driver and (as pedestrian) an ordinary everyday guy. He finally gets "his" in a smashup, and next we find his spirit coming from the wreck, then passing on to a heavenly "court" for judgment of his highway record. In a series of movie flash backs with plenty of drama, the audience is shown how this driver exposed himself to accidents over the years through carelessness. The conclusion comes when the judge asks the jury (the movie audience) to decide the driver's guilt.

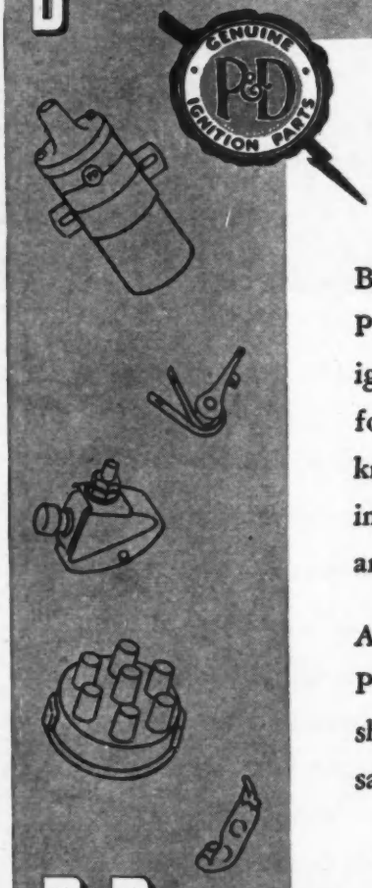
This picture was professionally made with professional talent, including George Mathews, seen in such hits as "Stage Door Canteen," "Wilson," "Up in Arms," "Eve of St. Mark," and others. Edmon Ryan, of "Janie," "Three Men on a Horse," "The Male Animal," etc., and Richard Gordon, well known to radio and stage audiences.

Commenting on the objectives which motivated the production of this film, Commissioner Magee said, "We decided that this film, above all, must be factual—designed to influence all who view it to correct those casual little acts of carelessness which cause most accidents. There were other requirements, too. These included a blending of entertainment to make the picture comparable to the excellent movie 'shorts' which are commonly shown on theater programs. This has all been achieved in 'X Marks the Spot.'"

Added the Commissioner: "This film, surprisingly enough for its type, is producing a large quantity of fan mail. A typical comment reads, 'A thing like this can teach more than all the pamphlets and lectures in the world.' The signs and many guides and helps along the highways, so fine in themselves, will be greatly aided, I know, if pictures of this sort reach the eyes and ears of drivers and pedestrians."

It has been suggested that whatever method may be used for safety education by a commercial fleet, this film will fit into the program as a supplementary feature. On the other hand, in some instances it will supply the basic material upon which the fleet may build its own postwar training program. For further details, write to Safety Education Division, Department of Motor Vehicles, State House, Trenton (7), N. J.

Precision in Manufacturing and Dependability in Service



quality products speak for themselves!

By handling the one complete line of P & D high quality starting, lighting, ignition, replacement parts, and coils for trucks, buses and automobiles, you know you are doing your share in keeping America's vehicles rolling longer and safer.

And with good reason! For high quality P & D products always assure repair shop and service station operators of satisfactory jobs for their customers.

You cannot purchase any finer quality.

P & D MANUFACTURING COMPANY, INC.
LONG ISLAND CITY, NEW YORK
STARTING • LIGHTING • IGNITION • REPLACEMENT PARTS
P & D MANUFACTURES ONLY ONE COMPLETE QUALITY LINE. ONLY THE FINEST MATERIALS AND WORKMANSHIP OBTAINABLE ARE EMPLOYED

Mel G. Barnes, left, and Thomas A. Cunningham, right, identified with the government supervision of transportation during the war, have been named special commercial car representatives for the Studebaker Corp.

Trailmobile Discovers Ways to Attain Surpassing Strength and Durability

Trailer-engineering has advanced remarkably due to Trailmobile's exclusive ELECTRONIC "stress-measurement"!

For instance, Trailmobile's new U-shape, channel posts and struts are proved by ELECTRONICS to be much stronger on the 3 sides where strength is needed. Yet they have no "excess" weight of a needless "4th side," since they receive very little stress from the 4th direction.

Then we, at Trailmobile, "use" this savings in weight to add *extra* posts and struts. And thereby get a more compact, integral, *aerodynamic* side-structure, with a "diamond" strut-arrangement every 18 inches! This structure is fully as strong as though it had big, tough posts spaced only 9 inches apart!

And the same type of improvement has set a new standard for trailer frames. Trailmobile's new frame is a "load-spreading beam" that *distributes* strains and stresses, eliminating entirely the old usual "load-stress concentration"! And even Trailmobile's under-structure, although standard for the industry, has also been still further improved.

So visit soon, your near-by Trailmobile Branch, to see a *great* new van. You will quickly discover countless new ways that Trailmobile will cut your maintenance and operating costs.

* * *

The Trailmobile Company • Cincinnati 9, Ohio

TRAILMOBILE

Protecting its 104 Year Reputation

—71 "Homefolks" Service Centers

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CCJ NEWSCAST

SAE Announces Program for Annual Meeting in Detroit

The annual meeting of the Society of Automotive Engineers will take place January 7 to 11, 1946, at the Book-Cadillac Hotel, Detroit, Mich. On transportation and maintenance, January 7, 10 A.M., the tentative program includes a cleaning symposium —How Chemistry Simplifies Automotive Cleaning, by Ray Sanders of Turco Products, Inc.

At 2 P.M., Monday, the truck and bus program consists of a "Review of Brake Design and Methods of Rating" and a discussion on "Brakes for Commercial Automotive Vehicles," by R. K. Super of the Detroit-Timken Axle Co. These papers were prepared by M. C. Horine, Mack Mfg. Corp., and B. E. House, Bendix Products Division, Bendix Aviation Corp.

The transportation and maintenance program for January 8, 10 A.M., includes a symposium on "Approaches to Vehicle Retirement," prepared by W. J. Davidson, General Motors Corp.; G. W. Laurie, Atlantic Refining Co.; W. A. Taussig, Burlington Transit Co.; H. L. Willett, Jr., Willett Co., and D. K. Wilson, N. Y. Power & Light Corp.

At 2 P.M., Tuesday, Robert Cass of the White Motor Co., will speak on "Motor Trucks of the Future," and H. S. Fairbank of the Federal Works Agency, Public Roads Admin., will discuss "Highways of the Future."

M. C. Dittman Dies, Chilton Eastern Representative

Matthew Carton Dittmann, 56, of Chestnut Hill, Pa., died suddenly in New York City on Dec. 6 while on a business trip as eastern representative of the Chilton publications, *Automotive and Aviation Industries* and *Motor Age*. He suffered a heart attack and died without regaining consciousness. Surviving are his widow, son and two daughters.

A.T.A. Announces Schedule for Cincinnati Meeting, Jan. 13-17

A tentative schedule has been announced for the January meeting of American Trucking Assns., Inc., which will be held at the Netherland Plaza Hotel in Cincinnati.

The Committee on National and State Organization will meet at 10 A.M., January 13. At 10 A.M., January 14, the officers and committee of A.T.A., Safety and Operations Section will meet. The meeting will be continued at the same time on Tuesday, January 15.

The Freight Claim Assns. Conference, the Tank Truck Carriers' Conference and the Local Cartage National Conference will take place at 10 A.M., January 15. The Policy Committee will meet at 2 P.M. on Tuesday.

Membership Meetings of all A.T.A. Conferences will convene at 10 A.M. on Wednesday, January 16. At 9:30 A.M. on Thursday, the A.T.A. Board of Directors will meet, and the A.T.A. Executive Committee will assemble at the close of the Directors' meeting.

Russell Case on Staff of Commercial Car Journal

Russell Case, formerly advertising manager of Thermoid Co., Trenton, N. J., has joined the Chilton Co. as eastern advertising representative for COMMERCIAL CAR JOURNAL.

Mr. Case has a broad and intimate knowledge of automotive merchandising problems. For several years he served on the National Standard Parts Research Committee and was

(TURN TO PAGE 102, PLEASE)

James G. Hull new manager of the Fort Wayne region for the Cummins Engine Co., Inc., Columbus, Ind.

H. C. Mountain. new New York division manager for the Prest - O - Lite Battery Co., Inc., Indianapolis, Ind.

Charles R. Crowder, manager of the automotive division of the Van Norman Co., Springfield, Mass., and newly elected vice president of the company

Lt. Col. H. P. Valentine has been appointed manager dealer sales and operations of the Mack - International Motor Truck Corp.

E. O. Jones has rejoined Ethyl Corp. and will be a staff assistant to Julian J. Frey, general sales manager

C. E. Murray, of The Willard Storage Battery Co., has been elected president of the Association of American Battery manufacturers

Wherever Trucks and Buses Roll

MIDLAND SERVICE IS NEAR

North, East, South, West! All over the country . . . trucks and buses equipped with Midland Power Brakes are backed by adequate service as they travel their routes.

Midland Brakes are remarkably free from service requirements, but it's a satisfaction to know that dependable service is near, if needed. There are one or more Midland Distributors or Dealers in key cities from coast to coast.

Safeguard your equipment with Midland Power Brakes. See the Midland Distributor near you, or write to us for complete information.

THE MIDLAND STEEL PRODUCTS CO.
10605 MADISON AVENUE, CLEVELAND 1, OHIO
Export Department: 38 Pearl Street, New York City

NOTE: A newly acquired plant makes it possible for us to consider the post war manufacture of a few items in household or office appliance, automotive or mechanical fields, in small or medium size fabrications. We invite inquiries to MIDLAND NEW PRODUCTS DEPT., at the address at the left.

MIDLAND
CHRISTENSEN
POWER BRAKES

CCJ NEWCAST

(CONTINUED FROM PAGE 100)

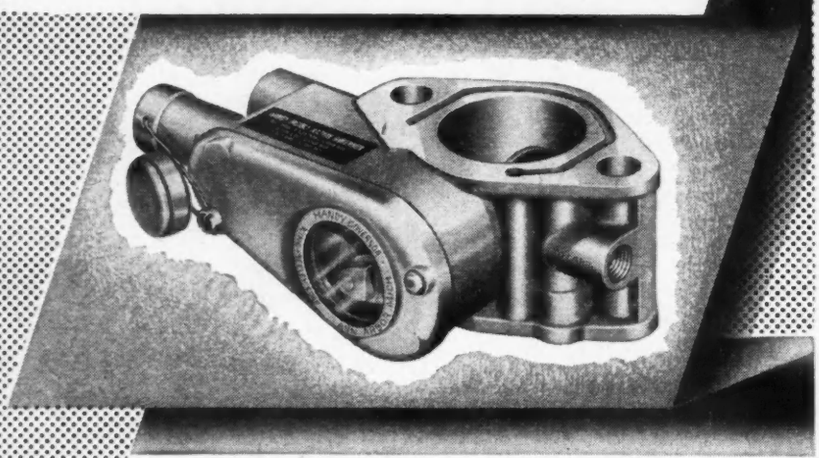
chairman of the NSPA Catalog Standardization Committee. He served two terms as president of the Automotive Advertisers Council.

Dodge Announces 1-Ton Four-Wheel Drive Truck

Dodge Division of Chrysler Corp. has announced the civilian version of the four-wheel drive Dodge military truck having a nominal payload rating of one ton. It is a general purpose vehicle designed specifically for off the highway operation and for service on unimproved roads. It is mounted on a 126-in. wheelbase chassis and is available with a steel express body 8 ft. long. The engine has a maximu mbrake horsepower of 94 at 32000 r.p.m.

As optional equipment the vehicle offers a power takeoff, belt pulley drive and winch. Full details will be published in January issue.

THE WAR DEBT WOULD HAVE BEEN LARGER *except for these Governors*



It is always vitally important for a military expeditionary force to conserve the motors and tires of its vehicles, its fuel and lubricant, due obviously to the difficulties of replacement. • Prewar records show that the use of King-Seeley Governors on trucks accounted for savings of 32% on engine repair, 23% on tire maintenance, 26% on lubricant costs, 15% on fuel, 30% on brake maintenance. • Just how these figures compare with operation of governed military vehicles is not known. But it is fair to assume the differences would not be great. • In excess of 1,100,000 King-Seeley Velocity Governors have been installed on military trucks, ducks and alligators—570,000 on one model of truck alone. • These same governors will later serve as well and with equal economy on commercial vehicles after the war has been won.

ARMY E NAVY

KING-SEELEY CORPORATION

ANN ARBOR MICHIGAN

MANUFACTURERS OF THE FAMOUS HANDY VISIBLE ACTION AND HANDY VARI-SPEED GOVERNORS

Monthly Production of Trucks and Truck Tractors

1945	Civilian	Military	Total
LIGHT — Under 9,000 lbs. G.V.W.			
January	.....	21,621	21,621
February	159	20,841	20,000
March	1,784	21,925	23,709
April	4,746	18,352	23,098
May	5,688	18,633	24,321
June	5,823	16,306	21,829
Total—6 Months	17,899	117,478	135,377
July	3,993	10,693	14,686
August	5,283	4,403	9,686
September	6,240	.....	6,240
Total—9 Months	33,415	132,574	165,989
MEDIUM — 9,000—16,000 lbs. G.V.W.			
January	11,183	3,527	14,710
February	10,534	3,378	13,912
March	12,829	3,994	16,823
April	10,275	3,645	13,920
May	12,003	3,526	15,529
June	12,017	2,093	14,110
Total—6 Months	68,841	20,163	89,004
July	12,556	1,465	14,022
August	16,851	2,424	19,276
September	17,831	1	17,832
Total—9 Months	116,081	24,053	140,134
HEAVY — 16,000 lbs. G.V.W. and Over			
January	3,836	26,898	30,734
February	3,339	26,162	29,501
March	3,726	30,474	34,200
April	3,959	26,302	30,261
May	4,624	26,484	31,108
June	5,592	24,815	30,407
Total—6 Months	25,076	161,135	186,211
July	4,843	21,011	25,854
August	5,398	10,420	15,818
September	6,401	1,110	7,511
Total—9 Months	41,718	193,676	235,394
TOTAL—ALL WEIGHTS			
January	15,019	52,046	67,065
February	14,032	50,181	64,213
March	18,339	56,393	74,732
April	18,980	48,299	67,279
May	22,315	48,643	70,958
June	23,131	43,214	66,345
Total—6 Months	111,816	298,776	410,592
July	21,394	33,169	54,563
August	27,532	17,247	44,779
September	30,472	1,111	31,583
Total—9 Months	191,214	350,303	541,517

Charles B. Rawson Rejoins Commercial Car Journal

Charles B. Rawson has rejoined the editorial staff of COMMERCIAL CAR JOURNAL upon discharge as Major in the Army Air Force. He had been on leave of absence since August, 1941.

Allyn with Warner Patterson

Hosmer Allyn, author of "Air-Water Jets Blast Engine Deposits," which appeared on page 42 of the November issue of COMMERCIAL CAR JOURNAL, is associated with Warner Patterson Co., Chicago, and not Warren Patterson Co., as shown with his by-line.

(TURN TO PAGE 105, PLEASE)

CCJ NEWSCAST

(CONTINUED FROM PAGE 102)

Fruehauf Officials Promoted

The promotion of two officials of the Western Division of the Fruehauf Trailer Co. has been announced. Robert S. Kirksey, vice president and general manager, was made president of Fruehauf Trailer Co. of California. Walter J. Pickhardt, former sales manager, was moved up to vice president and general manager.

William J. Cumming Joins White in Cleveland

William J. Cumming, former Chief of the Maintenance Section of O. D. T., has joined the White Motor Co. in Cleveland as Superintendent of Field Service Operations, according to announcement by Freeman G. Allen, General Service Manager. Mr. Cumming assumes his new position following extensive experience in the field of motor transportation.

Born at Arlington, Virginia, he attended Central Falls (R.I.) High School and Rhode Island College of Design. From 1915 to 1919 he was design engineer with the Selden Motor Truck Co. of Rochester, N. Y., and from 1919 to 1924 he occupied a similar role with the Goodyear Tire & Rubber Co. He then went with the Six Wheel Co. of Philadelphia as Assistant Chief Engineer, and was later made General Service Manager, serving that organization until 1929. From then until 1942 he was General Superintendent of the Third Avenue Railway Co. and the Surface Transportation Corp. of New York. In 1942 he was named Chief of the Maintenance Section, Office of Defense Transportation.

1946 Passenger Car Prices About Same as for 1942

IN ANNOUNCING ceiling prices of new 1946 model passenger cars the Office of Price Administration has given fleet operators assurance that retail prices on the average will be no higher than those charged in January, 1942, adjusted for changes in design and engineering specifications. Factory prices will average an increase above 1942 levels of about 3½ per cent, but this increase will be absorbed by car dealers. To accomplish this absorption, OPA has ordered a uniform reduction in dealer discounts of 2.5 percentage points. It is OPA's contention that even with the lower discounts car dealers are assured of a higher net profit because of the elimination or reduc-

(TURN TO PAGE 114, PLEASE)

It's new . . . JUST OFF THE PRESS

YOURS FOR THE ASKING

Knock-Out

VALVE SEAT RING DATA BOOK . . . .

Complete with specifications for all models —Cars, Trucks, Tractors and Farm Light Plants.

Knock-Out Valve Seat Rings are individually cast of close grained, hard, gray iron. The accuracy with which they are made and ground insures concentric walls and correct bevel for driving. • K-O Rings will wear longer than the original valve seat because they are made of better and more uniform metal than that of the cylinder block. • Knock-Out Rings are stocked by most automotive parts jobbers.

K. O. LEE COMPANY
1102 FIRST AVE. S. E.
ABERDEEN, SO. DAK.

Gentlemen:
Kindly send me ( ) copies of your new VALVE SEAT RING DATA BOOK

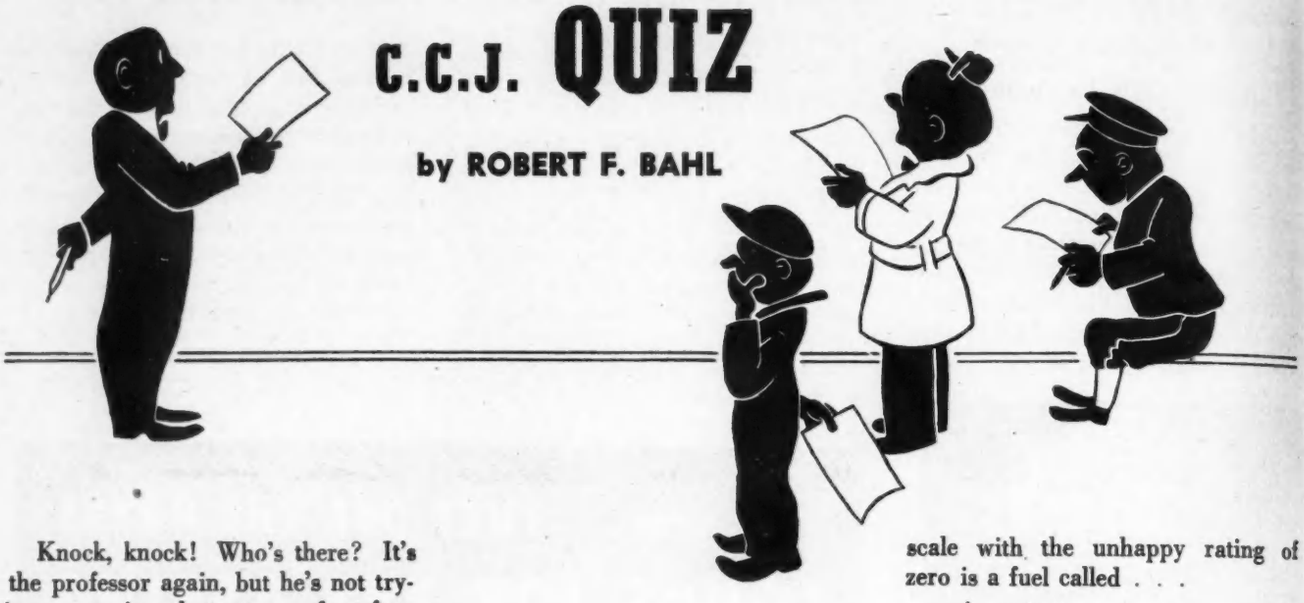
NAME_____

STREET_____

CITY_____ STATE_____

C.C.J. QUIZ

by ROBERT F. BAHL



Knock, knock! Who's there? It's the professor again, but he's not trying to revive that game of a few years back. He's just got 10 questions and all of them are about anti-knock fuel. Each question counts 10 points. Seventy is fair; 80 is good; 90 is a knockdown and 100 is a knockout. Answers are on page 116.

1.

The first question is short and to the point. What is knocking?

a. The spontaneous explosion in the cylinder of part of the unburned fuel ahead of the flame

b. A detonating effect produced by water vapor in gasoline

c. The boiling of gasoline in a fuel system

2.

If you wanted anti-knock gasoline back in 1923, the attendant gave you tetra-ethyl lead . . .

a. in the form of pellets the size of an aspirin tablet

b. by turning a pet-cock that allowed drops of tetra-ethyl lead to flow into the gas as it was pumped into the tank

c. with a medicine dropper . . . 5 drops to the gallon

3.

The reddish color of gasoline containing tetra-ethyl lead is . . .

a. due to minute particles of lead in the solution

b. due to the refraction of light from oversize molecules

c. for the purpose of identification only

4.

For six months, in his quest for an anti-knock ingredient, Dr. Midgley experimented with tellurium. Why did he abandon this even though it showed signs of promise?

a. Because it cost only $25 an ounce

b. Because it corroded pistons

c. Because it smelled like garlic

5.

So far, our questions have been on increasing the anti-knock value of a gas by the use of additives. In recent years, though, more and more high octane gas is being produced by . . .

a. berginization

b. catalytic cracking

c. homogenization

6.

Back in the "show me" days, demonstrators used to prove the potency of tetra-ethyl lead in stopping knocking by . . .

a. sprinkling a few drops of tetra-ethyl lead on their neckties and waving them before the intakes of engines

b. using terribly knocking kerosene in the engine and then adding tetra-ethyl lead to make the engine run smoothly

c. pouring a pound or more of lead shot into gas tanks

7.

At the very bottom of the octane scale with the unhappy rating of zero is a fuel called . . .

a. iso-octane

b. normal heptane

c. kerosene

8.

Will our readers pardon us just once for getting away from trucks and into the field of aviation? It is possible for a pilot to increase momentarily the octane rating of the gas by injecting into his fuel mixture . . .

a. a few drops of 500-octane gas

b. U-235 Uranium

c. plain, ordinary water

9.

And at the top of the scale right now is a new and mighty fuel, far more powerful even than 100-octane gas, and it is called . . .

a. triptane c. radium blend

b. ziptane d. diethyl selenide

10.

Each of these men has earned fame in the development of high-octane fuel. For each name that you can match up with his particular field, you get a credit of two points.

a. Carbon Petroleum Dubbs
b. T. A. Boyd
c. Carl Breer
d. Eugene Houdry
e. Graham Edgar

1. catalytic cracking of oil
2. thermal cracking of oil
3. the octane scale
4. tetra-ethyl lead
5. the "Red Head" motor

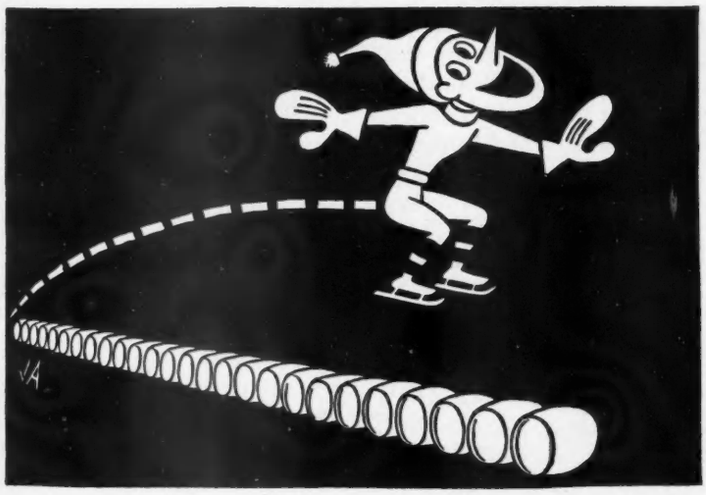
(Answers on page 116)

for full power, too, in your fleet

26 Basic Designs of Sealed Power Piston Rings

NOT 2 . . .

NOT 6 . . .



BUT 26 . . .

The right oil rings end oil waste. The right compression rings stop blow-by—which wastes gasoline. But both types of rings must also operate with low friction, in order to insure full power, because *friction wastes power.* All-around balanced performance is what you need—and it's what you get from Sealed Power Individually Engineered Ring Sets. Each set is selected from twenty-six (26) basic ring designs, and is specifically engineered to do the best possible job in a particular engine. Sealed Power has been refining these sets six years—has been producing rings for car, truck and engine manufacturers 34 years. For balanced performance to save oil, gas, and power—and to lengthen engine life—re-power with Sealed Power motor parts. Sold by America's Leading Distributors. Sealed Power Corporation, Muskegon, Michigan and Windsor, Ontario.

Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves, Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts.

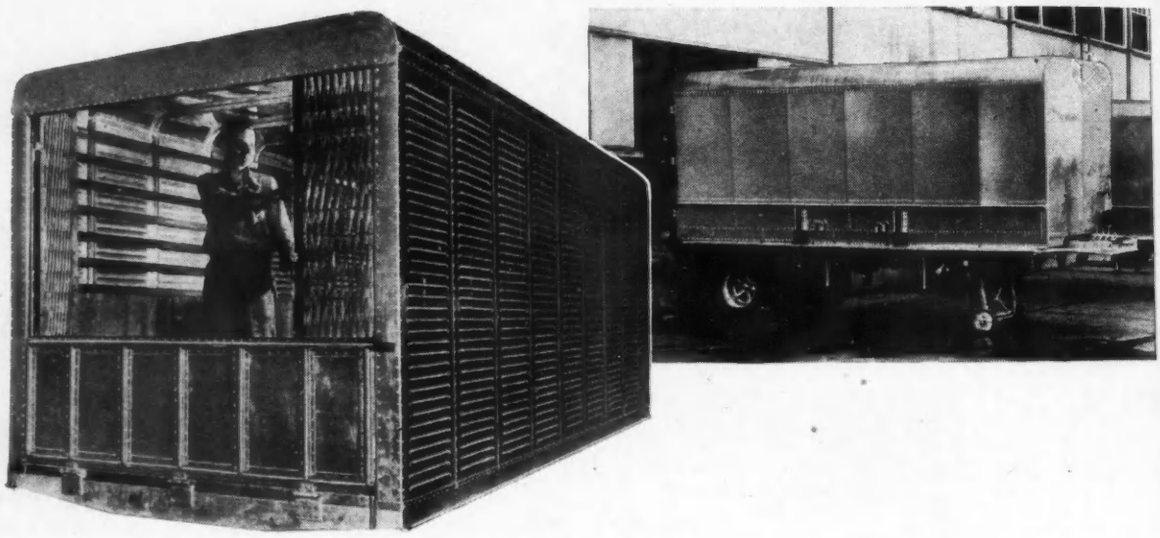
Keep your war bonds! Get $4 for $3!

SEALED POWER PISTON RINGS

BEST IN NEW TRUCKS! ★ BEST IN OLD TRUCKS!

INDIVIDUALLY ENGINEERED

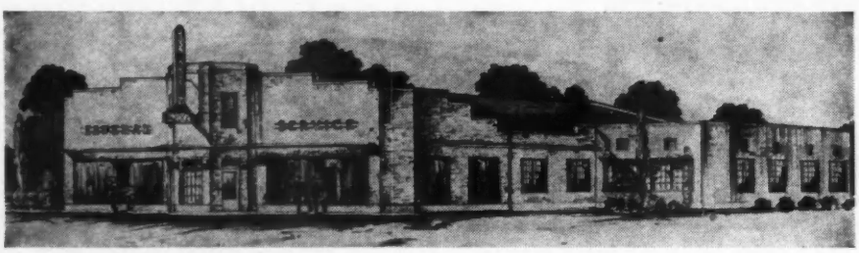
Performance Tests Under Way for All-Aluminum Bodies



Less-than-carload container reduces handling costs and speeds loading

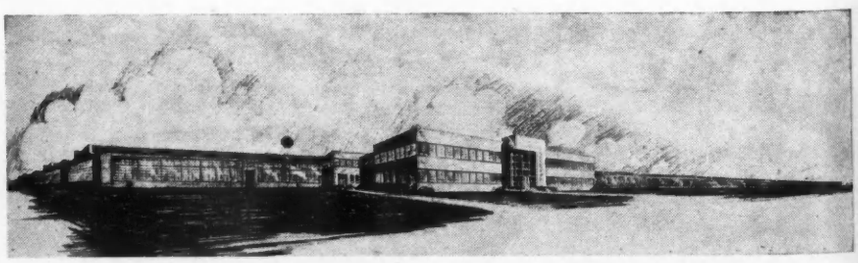
A new lcl (less-than-carload) container made of aluminum has been developed by the Reynolds Metals Co., and two test models have been completed at Reynolds Louisville plant. The two models will be put into immediate use between Reynolds plants around the country before designs are turned over to manufacturers for production. Preliminary designs of the container, which is used for shipping less than carload lots of material, were drawn up by Reynolds Railway Supply Division, Chicago, which Division designed the first aluminum box car now in use on several railroads. Made of strong aircraft aluminum, it has a capacity equal to half of a box car and is considerably lighter per pound capacity than similar containers of previous design and material. The aluminum container is shown here on a trailer frame which is especially designed for transporting it between loading docks and flat cars. When the trailer frame is parked alongside dock or flat car, the container is easily shifted on and off with the aid of built-in hydraulic jacks and ball-bearing rollers. As a compact unit, it also lends itself readily to water and air transit.

Besides reducing shipping costs on less than carload lots of material, this new aluminum lcl container will greatly facilitate loading and unloading for plants not having immediate access to rail lines. Used with a delivery service similar to Railway Express Agencies, the container would make possible door-to-door delivery on one-half box car shipments with no intermediate handling of the contents required.

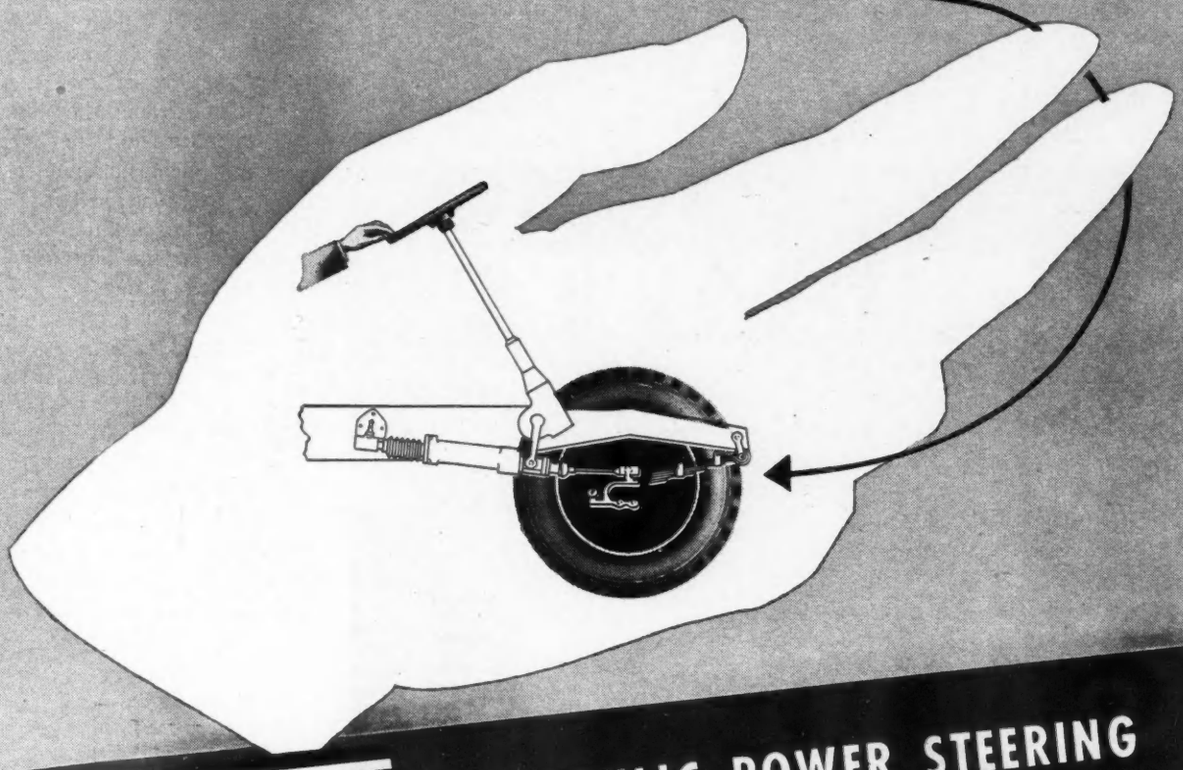


▲ **Architect's sketch of the new $40,000 ultra-modern Truck Service Center now being constructed by the W. E. Brown Truck Co., Federal truck distributors at Topeka, Kan. The new building being built of native stone will have approximately 11,607 sq. ft. of floor space when finished, including the latest shop and service equipment, with a complete parts department to service all makes of trucks**

The $4,500,000 trailer plant planned by Fruehauf Trailer Co. will be located at Avon, Ohio, and will be devoted exclusively to trucktrailer production. The new factory site consists of 186 acres; the main manufacturing building will be 2250 ft. by 400 ft. All employees except key executives will be recruited from the immediate area ▼



INSTANTANEOUS FINGER-TIP RESPONSE



with VICKERS HYDRAULIC POWER STEERING

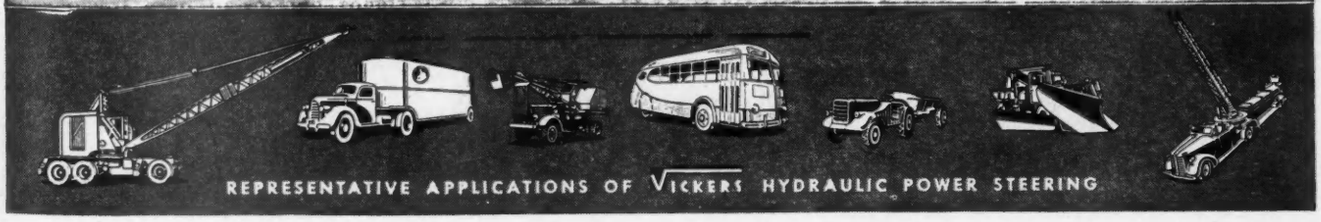
Two fingers on the steering wheel—it turns easily, and the front wheels of the heaviest truck or bus follow exactly. Vickers Hydraulic Power Steering does the work. And steering is just as easy over the roughest ground off the road as it is on smooth concrete. Road shock *cannot* be transmitted from the front wheels to the steering wheel or driver.

Steering is instantly responsive and firm—no rubbery feeling or wander. The driver is relieved of the most exhausting part of his job, enabling him to get more done with less fatigue.

Vickers Hydraulic Power Steering has many other advantages: (1) requires minimum space and is applied to most existing hand steering mechanisms with a few simple alterations; (2) automatic protection against abuse and excessive steering reaction forces; (3) automatic lubrication; (4) 15 years of successful operating experience. Ask for Bulletin 44-30.

VICKERS *Incorporated* • 1418 OAKMAN BLVD. • DETROIT 32, MICHIGAN

Application Engineering Offices: CHICAGO • CINCINNATI • CLEVELAND • DETROIT • LOS ANGELES • NEWARK • PHILADELPHIA ROCHESTER • ROCKFORD • TULSA • WORCESTER



REPRESENTATIVE APPLICATIONS OF VICKERS HYDRAULIC POWER STEERING

Chevrolet Strengthens Bodies, Uses New Materials for '46

SINCE the announcement of the 1946 Chevrolet line (in the November issue of COMMERCIAL CAR JOURNAL) some supplementary information has been received concerning other improvements.

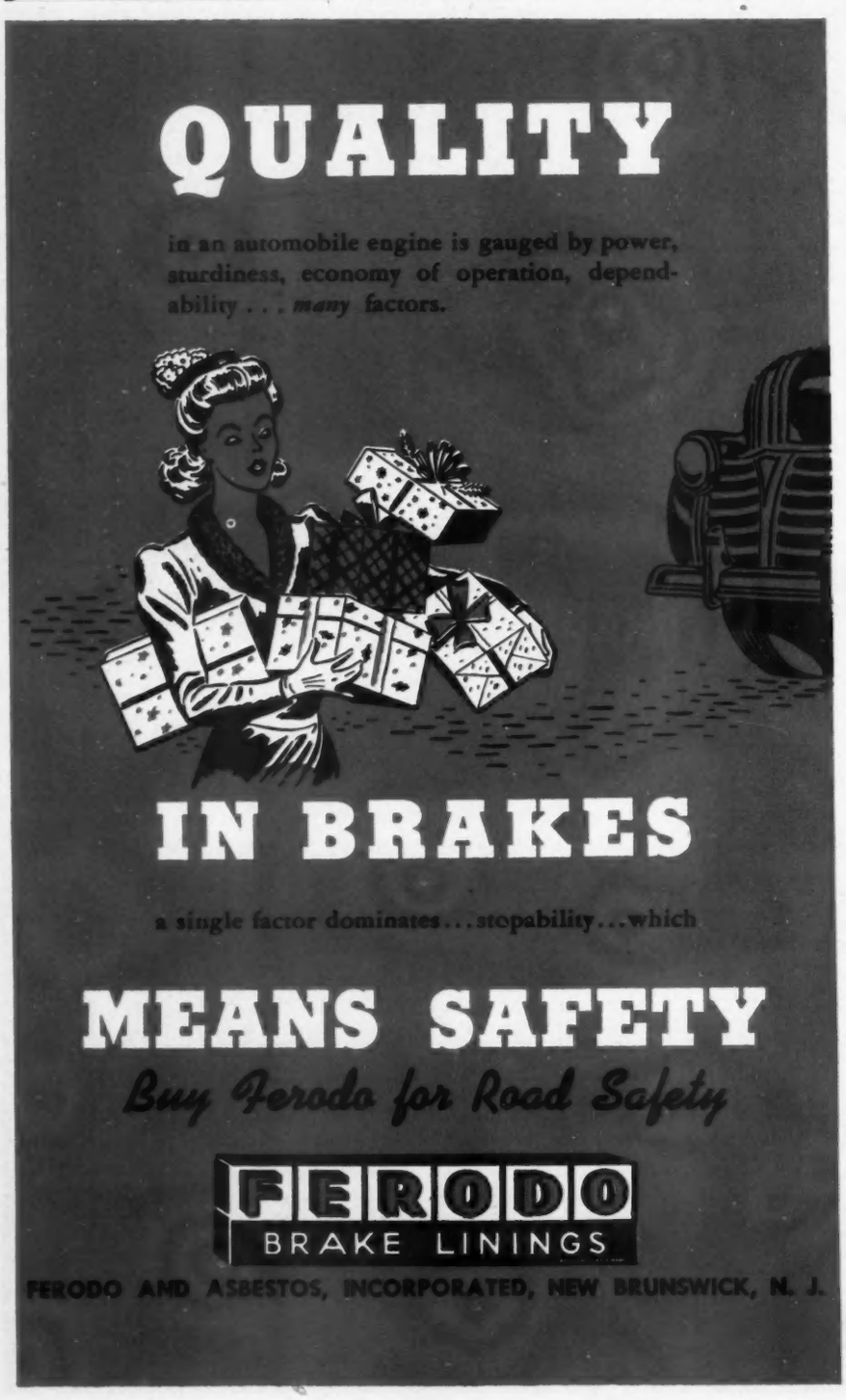
Chevrolet has adopted oil resisting synthetic materials in place of the rubber parts formerly used. Among the new applications are the following: for axle shaft oil seals, transmission rear bearing seal, water pump seal which offers greater resistance to the action of some anti-freezes, radiator hose, harmonic balancer grommets, and fan belt.

The body sheet metal has been improved to resist corrosion. The rocker inner and outer panels, the body rear lock pillar lower outer panel, and the rear end panel below the trunk lid are made 30 per cent thicker. Body sill moldings are of solid stainless steel. Bolts now are used for sill molding fastenings at the front fenders and the rocker panel extensions. Where the numerous attaching brackets were formerly riveted to the box section structural member of the frame, they are now welded for more rigid attachment.

On Stylemaster models the horn button is redesigned for better locking by the addition of a locking plate under the button. Even when the button is pressed down on the outer edge, it cannot get stuck out of position.

Stemming from war experience, the brake fluid is of better quality and will withstand much lower and much higher temperatures without injury.

Another noteworthy change is the adoption of inverted flared tube and pipe fittings throughout the cooling system of the car. It is said to be proof against fracture or breakage of water lines under severe operating conditions.


QUALITY
in an automobile engine is gauged by power, sturdiness, economy of operation, dependability . . . many factors.
IN BRAKES
a single factor dominates . . . stopability . . . which
MEANS SAFETY
Buy Ferodo for Road Safety
FERODO
BRAKE LININGS
FERODO AND ASBESTOS, INCORPORATED, NEW BRUNSWICK, N. J.

INGENIOUS DEVICES

(CONTINUED FROM PAGE 45)

it is doing our job the way we want it done.

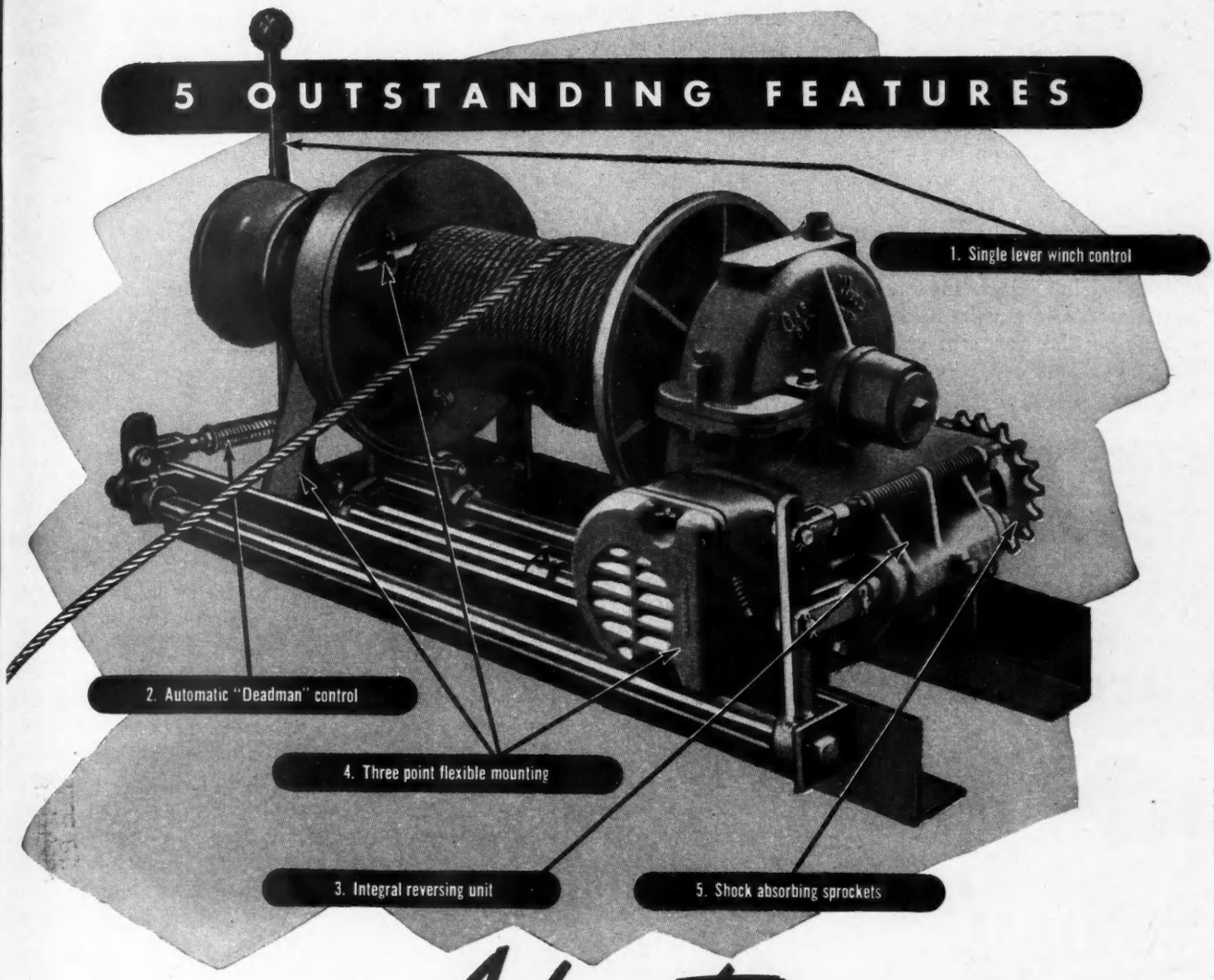
Timing of the injector is changed by redrilling the six bolt holes in the cam shaft gear to reposition it and we get a slight adjustment by the use of extra shims between the follower housing and the motor block. The design of the cam follower is such that by moving it away from the block it will change the time that the cam follower arm and roller contacts the lobe on the cam shaft. When this operation is completed the heads are installed, the fuel pump has been overhauled and injectors have been thoroughly repaired and tested.

We do not break our motors in on stands but install in a tractor and give it a short test or break-in run. We expect, however, to install shop testing and chassis dynamometer equipment for checking engine performance under load in the shop.

END

(Please resume your reading on P. 46)

5 OUTSTANDING FEATURES


1. Single lever winch control
2. Automatic "Deadman" control
4. Three point flexible mounting
3. Integral reversing unit
5. Shock absorbing sprockets

Advantages

of Gar Wood winches which have been proved on every fighting front – wherever the "heavy lifting squads" had work to do.

★ With the control lever mounted in the open—the operator has a clear view of the work—not seated in the cab and dependent on relayed signals

★ The new and exclusive Gar Wood integral reverse gear mechanism provides complete winch action. Once in power gear, the operator can raise or lower or hold loads without declutching or shifting the power take-off gears. Forward, reverse action or holding is done under full load.

★ The 3-point flexible mounting, another exclusive Gar Wood feature, permits flexing of the chassis without cramping the drum or distorting the shaft. The entire unit is self aligning, thus giving a right angle pull to the cable. Special heat-treated mounting bolts are used.

★ The automatic "deadman" control is another exclusive Gar Wood feature. When the operator takes his hand from the control lever it returns to neutral and the powerful automatic brake holds the load.

★ Gar Wood traditional excellence in design and manufacture are evidenced in this super winch. For instance: The oversize shaft of special steel is carried by spherical bearings—the input and output shafts are mounted in self-contained, oversize ball bearings which are constantly lubricated—the winch sprockets are rubber mounted to absorb shock—and the winch units are interchangeable which permits any required mounting.

★ Every Gar Wood winch is tested at the factory under full rated load to assure perfect operation.

(Patent Applied For)

GAR WOOD INDUSTRIES, INC.

DETROIT 11, MICH. WORLD'S LARGEST MANUFACTURERS OF TRUCK AND TRAILER EQUIPMENT

CCJ NEWSCAST

(CONTINUED FROM PAGE 105)

tion in losses which formerly they were forced to take on used cars.

OPA did not grant any factory price increases to General Motors Corp. There may be some adjustments later, but chiefly in the higher priced models. This means that General Motors' cars will sell on an average of 2.5 per cent lower at retail because the reduction of dealer discounts in that amount will be passed on to buyers.

Ford retail prices will average an increase of 2 per cent. These prices will reflect changes in engineering specifications which have increased production costs. The price increases, which include improved braking and cooling systems as well as redesigned springs and shock absorbers, range from $27 to $32 at the retail level. Ford retail ceiling prices, which do not include excise taxes, transportation, preparation and handling charges, are as follows:

Ford De Luxe Eight: 3-passenger coupe, $834; Tudor sedan, $882; Fordor sedan, $931. Super De Luxe Eight: 3-passenger coupe, $891; Tudor sedan, $940; Fordor sedan, $989; Sedan coupe, $977.

Ford optional equipment retail ceiling prices: Oil filter, $6; wheel rings, $7.75; 100 h.p. engine, $25.

In the case of Chrysler Corp., OPA said that it was unlikely that, aside from specification changes, retail prices would be increased more than 1 per cent over 1942. This would apply to Plymouth, Dodge, DeSoto and Chrysler cars.

Studebaker retail prices will be increased an average of 9 per cent, primarily because of the smaller price increases taken by the company during 1941. Specification changes including new interleaf springs and improved shock absorbers as well as a heavier battery and improved window moldings will result in increases over 1941 costs of from $43 to $47 at retail. Studebaker retail ceiling prices, excluding taxes, transportation, preparation and handling charges, are as follows: 4-door cruising sedan, $967; 2-door club sedan, $918; 5-passenger double dater coupe, $916; 3-passenger business coupe, $875.

Studebaker optional equipment retail ceiling prices: Overdrive and free-wheeling, $52.55; hill holder, $8.50; wet type air cleaner, $3.90; six-blade fan, $1.75.

Detailed price schedules on other makes of cars will be issued as soon as they are completed.

Harry L. Gormley to Manage Chicago Milk Dealers' Group

Harry L. Gormley, formerly Regional Director of the Office of Defense Transportation in Chicago, has been appointed Executive Secretary of Associated Milk Dealers, Inc., a trade association with 75 members in Chicago and suburbs. Mr. Gormley succeeds Paul Potter, who resigned to become an industrial relations consultant to the dairy trade.

(TURN TO PAGE 196, PLEASE)

This winter, more than ever, every car, truck and bus should be provided with the vitally necessary safeguard of a thoroughly dependable Electric Defroster. Smooth tires, worn out vehicles and unrestricted use of automotive equipment multiplies road hazards many fold.

And CLEAR VISION is still the first essential to safe driving! A steamed up, frosted, sleet- or snow-covered windshield is the No. 1 driving hazard . . . that can be best offset by the installation of a Fulton "44" Electric Defroster. No electric heat is required for keeping space under defroster free from frost on the INSIDE. Electric heat is used only to melt ice and snow on the *outside* of the windshield.

Production of Fulton "44" Electric Defrosters is being stepped up and deliveries are being made in reasonable quantities.

ORDER FROM YOUR JOBBER!

THE FULTON CO. 1912 South 82nd Street Milwaukee 14, Wisconsin

AN ALL-TIME

PEAK

IN POPULARITY

★ Topping the most sensational growth in piston ring history, Hastings enters the post-war period at an all-time high in popularity.

From coast to coast, fleet operators know from experience that Hastings Steel-Vent piston rings *stop* oil-pumping, *check* cylinder wear and *restore* performance.

Steel-Vents are engineered specifically for replacement purposes. Their "soft pressure" action makes them the right ring for every cylinder condition—from straight-walled rebores to extreme tapers.

* * *

You can standardize on Steel-Vent with complete confidence.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN

Hastings Ltd., Toronto

HASTINGS STEEL-VENT

PISTON RINGS

U. S. PAT. 2,148,997

TOUGH ON OIL-PUMPING GENTLE ON CYLINDER WALLS

QUIZ ANSWERS

CCJ Quiz on Page 106

1. a. When an engine knocks, it is because the part of the fuel farthest away from the spark plug is under pressure and explodes before the flame ever reaches it.

2. b. Tetra-ethyl lead was first offered to the public at a Dayton, Ohio, service station in February, 1923. It was mixed with regular gas by opening a pet-cock while the gas was being pumped.

3. d. Tetra-ethyl lead is a liquid which looks like water. The red color is merely for identification.

4. d. Tellurim, although it looked promising, had a violent garlic odor that clung to everything.

5. b. By the use of catalysts—substances that produce a chemical change without undergoing any change themselves — refiners have been able to rearrange molecules so as to convert low-grade oils into high-octane gas.

6. a. The mere presence of tetra-ethyl lead before the intake of a knocking engine was sufficient to silence the knock. Demonstrators dramatized this by putting a few drops of fluid on their neckties and waving them over the engine.

7. b. In setting up the octane scale, normal heptane, because it gave the poorest performance of all fuels tested, was rated zero. Iso-octane, which was the least knocking fuel at the time, was given the perfect mark of 100. Any fuel then was given a rating according to how it compared in anti-knock value to a mixture of iso-octane and heptane.

8. c. The Pratt and Whitney Air-Craft Co. has developed a method whereby a pilot in a tight spot can get a momentary burst of extra power by turning a control which sends a tiny jet of water into the fuel mixture. This cools the engine and temporarily increases the octane rating of the gas.

9. a. Triptane, a fuel with a higher anti-knock value than any substance ever produced. A few years ago it cost $3000 per gallon, but now, due to the work of Dr. Vladimir Ipatieff, it can be had for less than $1 a gallon. There is no engine in existence today that can burn this fuel "straight."

10. a-2 Carbon Petroleum Dubbs —developer of a thermal process for converting residual oil into gasoline.

b-4 T. A. Boyd—co-worker with Dr. Thomas Midgley in the discovery of tetra-ethyl lead.

c-5 Carl Breer — engineer on Chrysler's "Red Head" motor, first optional motor designed for Ethyl gas.

d-1 Eugene Houdry—inventor of the "cat cracker."

e-3 Graham Edgar—originator of the "octane scale" for measuring the anti-knock quality of gasolines.

END

(Please resume your reading on p. 108)

"Every Mechanic Needs These Two Sets" —Central Mike
THE CENTRAL
Certified Accuracy
MICROMETER
SET NO. 808
Inside Micrometers
Range 1½ to 8 inches.
$12.00
Complete with Extension Handle and Deluxe Plush-Lined Case
SET NO. 745 RL
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Range 0 to 4 inches.
$46.50
Complete with Ratchet Stops, Lock Nuts, Standard Test Gauges and Deluxe Hinge Plush-Lined Case
WRITE TODAY FOR CATALOG NO. 17
The entire line of individual micrometers and complete sets illustrated and fully described.
THE CENTRAL TOOL CO., AUBURN, RHODE ISLAND
CENTRAL
FOR MORE THAN A QUARTER CENTURY SPECIALISTS IN FINE MICROMETERS
CERTIFIED ACCURACY

F. R. Nail has been appointed assistant to the chief engineer in charge of highway truck developments of Mack Trucks, Inc.

GUNITE

BRAKE DRUMS

NO FLEX

One thing about a brake drum of ordinary design that will cause it to fail quicker than for any other reason, is a tendency to flex on the cam and anchor sides. This permits the drum to go out-of-round enough to concentrate the pressure at only a few points, resulting in early lining failure and burned and scored drums.

GUNITE Brake Drums eliminate flex at the cam and anchor sides by means of a carefully engineered ribbed construction which adds enough stiffness to overcome any tendency toward distortion. As a result, pressure on the drum is evenly distributed, wear is uniform, lining life is longer, braking is more efficient, drum life is substantially greater, frequent adjustments or repairs are eliminated, and service expense is materially reduced.

GUNITE cast-rib construction (not machined grooves) provides a proper distribution of the metal structure for maximum strength, and also aids in the rapid dissipation of heat, adding further to the durability of drums in service.

The material of which GUNITE Drums are made is engineered and carefully controlled to provide maximum strength, self-lubrication through free graphite, and the proper modulus of elasticity to meet strenuous service conditions.

As proof of these claims we can cite, on request, many instances where users have run exhaustive comparative tests to check the superiority of GUNITE Brake Drums over other drums. We urge any prospective user of GUNITE Drums to make such a test, to see for himself the many advantages.

In addition, we offer the GUNITE Direct Factory Shipment Plan, by which you order from your regular jobber and quick shipment is made direct to you, to eliminate unnecessary stocking and handling.

Buy GUNITES — *for better braking.*

MADE BY
GUNITE FOUNDRIES
ROCKFORD, ILLINOIS

GUNITE BRAKE DRUMS...FOR TRUCKS, TRACTORS, TRAILERS, *and* BUSES

THE FUTURE OF DIESEL FUELS

(CONTINUED FROM PAGE 64)

"1. In high-speed diesel engines of present design a certain minimum cetane number is required to insure satisfactory starting and to minimize smoking, combustion roughness and engine deposits.

"2. Cetane number is a measure of ignition quality of a fuel. There is evidence that other characteristics indicative of the rate of flame propagation or its burning properties during the combustion phase are of equal importance in diesel engine performance.

"3. The use of very high cetane fuels (60 cetane or more—Ed.) has shown no great advantages in engines of present design. No data have been obtained using engines especially designed to take advantage of this property. However, it is believed that marked increase in engine power output can be obtained by use of high cetane rapid burning fuels in modified engines of reduced compression ratio with a high degree of supercharge.

"4. Study of data on ignition quality of pure hydrocarbons and on additives, indicates that fuels of widely varying composition and combustion characteristics with the same cetane number can be produced.

"5. Basic combustion research is necessary to determine the optimum composition of diesel fuels required for high output engines.

"6. Modern refining techniques, developed through stimulus of gasoline research, offer great flexibility for production of diesel fuels of special composition, providing sufficient economic incentive is established."

Basic Specifications Assured

ALL of the previous comment leads to the inescapable conclusion that the automotive diesel has a fussy digestive system and must have the right kind of fuel if it is to do its job properly. Some idea of the general range of specifications offered for this purpose will be found in the data on diesel fuels published in COMMERCIAL CAR JOURNAL in recent years. As we said earlier, the major producers have assured us that there will be no retreat from these specifications. At least not for some time to come.

In recent correspondence your editor was given a copy of an unpublished report on essential automotive diesel fuel characteristics which was prepared in 1941. It covered minimum acceptable specifications and emphasized that test results on a majority of engines operating under a wide range of conditions prove that a minimum value of 47 cetane is necessary. Our correspondent makes the comment that some high-speed diesel engines dislike fuels of less than 45 cetane number and most of them dislike fuels less than 40 cetane number.

There appears to be a feeling on the part of some petroleum technologists that as the demand for diesel fuel increases—sometime in the future—together with changes in refinery processing to which we referred earlier, the ignition value of diesel fuels will be lowered below the present levels. The bright side of the picture, however, is that the

(TURN TO PAGE 120, PLEASE)

CLAW
TIRE CHAINS
ON EVERY HIGHWAY...
Wherever tire chains are used to make driving safe, to provide controlled traction, "Claw" and "Dreadnaught" are the big names. They enjoy nationwide recognition too, as the best "buy" in dollar value, because of built-in long service life. Claw and Dreadnaught Tire Chains have themselves proved in service the reasons why you will find them on every highway.
DREADNAUGHT
TIRE CHAINS
COLUMBUS-McKINNON Chain CORPORATION
General Offices and Factories: Tonawanda, N. Y.
Plants at Angola, N. Y. St. Catharines, Ont., Can. Vereeniging, So. Africa

FOR UTMOST RELIABILITY IN THE HEART OF THE FUEL SYSTEM

AVAILABLE FROM THE AC WHOLESALER

Your AC Fuel Pumps give you such dependable service and long life because *highest quality is built in,* from blueprints to finished products. There is one sure way to protect that reliability and durability,—insist upon AC pumps and parts.

FOR REPLACEMENT—install new AC Fuel Pumps or Authorized Factory Rebuilt AC Fuel Pumps.

FOR REPAIRS—use AC Diaphragm or Parts Kits.

QUALITY FEATURES

- Careful control of pressure and flow assuring correct fuel supply.
- Accurate hardening, precision machining of parts essential to long life.
- Accurate control of spring tensions and temper.
- High, and controlled, pin hardness.
- 4-layer patented-impregnation diaphragms of special airplane cloth.
- Carefully finished rocker arm pads, located to center on cam.
- Split-hair rocker arm clearance and control of pad hardness.
- Uniform pull rod hardness at pin holes.

TAKE CARE OF YOUR CAR TILL NEW ONES ARE AVAILABLE

AC

FUEL PUMPS

SEND FOR AC SHOP MANUALS

Field Service Department, AC Spark Plug Division, G. M. Corporation
910 Union Industrial Building, Flint, 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop Manuals checked:

☐ How to Service Spark Plugs ☐ HOW TO SERVICE FUEL PUMPS
☐ How to Service Spark Plug Cleaner ☐ How to Service Air Cleaners
☐ How to Service Oil Filters ☐ How to Service Speedometers
☐ How to Service Ammeters and other Instruments CCJ-12

NAME_____
FIRM_____
STREET ADDRESS_____
CITY_____ STATE_____

THE FUTURE OF DIESEL FUELS

(CONTINUED FROM PAGE 118)

same conditions do not exist in all refineries. Undoubtedly, there will be some who can continue to maintain the same quality and make progressive improvements to meet the demands of new engine design. Obviously, what they fear most is the possibility that there will not be enough crude of the right kind to meet the demand for fuels around 50 cetane number. Diesel fuels produced from coastal and naphthenic crudes, while having better pour characteristics, are said to have lower cetane value than those obtained from the more paraffinic crudes. Moreover, if it is ultimately necessary to mix fuel of acceptable quality with cracked fractions, the resulting fuel will be of lower quality.

Research on Additives

TO MEET this eventuality, considerable research work is under way in an effort to develop additives capable of increasing the cetane number of a lower quality fuel mixture without depreciating other desired characteristics. Right along this line, C. M. Larson, chief consulting engineer, Sinclair Refining Co., presented a paper at the Tulsa meeting on the subject of "Diesel Fuel Additives Create New Concepts." His chief conclusions are as follows:

"The test data presented shows that satisfactory engine performance may be obtained on selected low cetane number fuels conservatively doped with Amyl Nitrate. These low-quality catalytic base stocks are of significant importance for satisfactory operation.

"Future design of diesel engines may incorporate either higher compression ratios or greater supercharging capacity, perhaps with higher speeds. An additive such as Amyl Nitrate will play an important part in the design of diesel fuels adapted to the design of these engines. Of course, changes will have to be made in the specifications, particularly concerning carbon residue on 10 per cent bottoms and the initial boiling points. A new 'Power Performance' or 'Service Rating' will take precedent over cetane number. Diesel Index should be dropped entirely where additives are incorporated into the diesel fuels of the future."

Note particularly the last statement to the effect that if and when additives are adopted, it may be necessary to employ a different method of rating ignition quality—superseding both cetane number and the little used diesel index.

However, in the body of his paper the author points out that the carbon residue (on 10 per cent residuum) is greatly affected by the use of Amy Nitrate. It increases three to 10 times the normal value with additions of ⅛ per cent of additives. The gum content also may be raised slightly but the effect is thought to be of passing significance. Similarly a slight increase in smoke density is expected. Whether these changes in specification quality are or are not significant is something that will have to be ironed out if and when additives become a part of the production picture.

(TURN TO PAGE 123, PLEASE)

TRIPLE PAY OFF for FLEET OPERATORS from NEW EDISON SERVICE

As fleet owners take increasing advantage of Edison's Transportation Service Department, they are finding that it really pays off in the way of

1. More efficient spark plug operation.
2. More economical fuel consumption.
3. Fewer replacements.

This all adds up to a saving in time and maintenance costs—but the facilities of this new Edison service *cost you nothing*. For full details, write Transportation Service Department, Edison-Splitdorf Corporation, West Orange, New Jersey.

Backed by the Greatest Name in Electricity

Edison
SPARK PLUGS
Edison-Splitdorf Corporation, West Orange, N. J.

THE FUTURE OF DIESEL FUELS

(CONTINUED FROM PAGE 120)

Certainties and Uncertainties

NOW that we have given you a quick summary of a rather confused picture, let us see where we are at the moment.

In the first place, regardless of what goes on behind the scenes, we know that the principal producers and marketers will continue to deliver fuels of acceptable specification quality. So there is little to worry on that score. What will happen in the future depends upon too many variables and is still subject for conjecture. Judging from the technical work being done by various organizations, it is obvious that ways and means will be found to give the diesel its proper "fodder" even if that happens to be something quite different from the present product. So long as what we get can be properly digested, why give it a thought?

We also are agreed that the diesel engine is really big business. We know that several newcomers will be announcing lines of automotive diesels by the turn of the year. You can't hold back progress. If millions of barrels of good diesel fuel can be consumed in the U.S.A., we can take it as a sure bet that someone will make it.

Price is something else again. Refinery economics could operate to increase the price of the fuel in the future. On the other hand, we may find refinery practice shifting to specialization in diesel fuels to the ultimate benefit not only in quality but in price level as well.

Let's sit tight and watch developments.

END

(Please resume your reading on p. 65)

The City of Louisville recently purchased six of the latest type White Super Power trucks, Model WA-26, equipped with all-enclosed metal bodies of the semi-automatic loading type, having a capacity of 13 cu. yds. They are Gar Wood bodies, closely tailored to the requirements of garbage collection. Painted in white, the vehicles radiate a pleasing atmosphere of sanitation

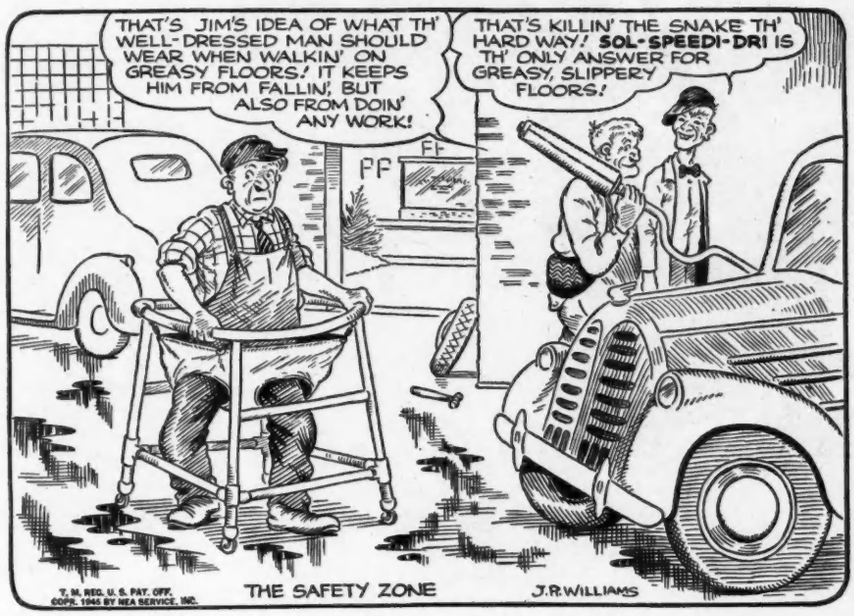
Dodge Resumes Salesmen Training Program

The national program of training retail truck salesmen which was in effect before the war was resumed by Dodge on November 15, L. F. Van Nortwick, director of truck sales, has announced.

Details of the comprehensive post-war training program were developed by Mr. Van Nortwick and his staff during a five-day conference in Detroit in which the Dodge truck sales department, and a group of experienced truck sales managers representing Dodge dealers participated.

The training program will be conducted in the various Dodge regions and made available to all Dodge dealers and salesmen. It is designed to give the Dodge dealer sales organization basic truck information which will enable them to be of maximum assistance to truck owners in their selection of new trucks fitted to their individual needs.

OUT OUR WAY


THAT'S JIM'S IDEA OF WHAT TH' WELL-DRESSED MAN SHOULD WEAR WHEN WALKIN' ON GREASY FLOORS! IT KEEPS HIM FROM FALLIN', BUT ALSO FROM DOIN' ANY WORK!
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For safety underfoot . . . for clean, bright floors . . . the answer *is* SOL-SPEEDI-DRI ! No trained personnel . . . no expensive machinery . . . is required to apply this granular, oil-thirsty absorbent. No time off for cleaning . . . SOL-SPEEDI-DRI works, while *you* work in safety!

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South, Midwest & West Coast—Waverly Petroleum Products Co., Philadelphia 6, Pa.

SOL·SPEEDI·DRI
OIL AND GREASE ABSORBENT

ELECTRIC ARC WELDING

(CONTINUED FROM PAGE 48)

method of reinforcing is to omit the back-up and use the reinforcing plate as a back-up for the vertical weld, putting the reinforcing plate on the inside of channel.

ELECTRODE: A.W.S. E-6010. An all position, positive-polarity electrode. The size of electrode depends upon the thickness of the frame and the accessibility of the joint.

POLARITY: Reverse polarity (electrode positive).

WELDING PROCEDURE: Weld top and bottom flanges of the channel first. Then weld the vertical crack, starting at the top of the joint, and weld downward. Chip and wire brush each bead to remove the slag and weld up any visible defects before applying the next bead. Fill up all weld craters before withdrawing the electrode. Top and bottom flange welds should be 10 per cent greater in thickness of the flange.

REINFORCING PLATE: If the reinforcing plate is to be applied to the outside of the frame, the weld beads at the break must be ground down flush with the surface of the frame so that the reinforcing plate will fit tightly against the frame. Then clamp the reinforcing plate in place and weld to the frame with a continuous weld around all edges of the plate. If the reinforcing plate was also used as the back-up plate, as is suggested in the paragraph under "Preparation" above, complete the welding of the reinforcing plate to the inner surface of the web of the frame member with a continuous weld around all edges of the plate. The size of the welds recommended for the various thickness plates are: a 5/32-in. fillet weld for a ¼-in. plate, a 3/16-in. fillet weld for a 5/16-in. plate and a ⅜-in. fillet weld for a ½-in. plate.

TREATMENT AFTER WELDING: Protect the welded section against drafts and permit it to cool slowly. Leave supporting jacks in place until the welds have cooled to room temperature.

NOTE: It is believed that the procedure given above will restore the frame to its original strength.

It is frequently advisable to increase the strength of the frame member in the area of the break. This may be done by fitting carefully one or more channels of suitable length into the frame or by a longer plate or angle attached to the outside of the frame. In either case, care must be observed to end the reinforcement in a taper to avoid localizing bending stresses at the end of the reinforcement.

Suitable application of reinforcements are a "must" in the repair of alloy, heat-treated frames.

Other automotive parts made of structural or pressed steel that can be welded by following the above procedure are bumpers, axle housings, dump bodies, fender brackets, running boards, etc.

Frame (Heat Treated)

JOB: To repair a vertical break in an automotive frame.

MATERIAL: Alloy pressed steel—heat treated.

LOCATION OF REINFORCING MEMBER: Either outside or inside of channel.

(TURN TO PAGE 126, PLEASE)

PROTECT EVERY MOTOR NOW--
WITH MARVEL MYSTERY OIL

The pressure on valves, rings and cylinder walls goes up as the temperature goes down and lubricants get sluggish and weaken. Now, more than ever before, you need the protection of MARVEL MYSTERY OIL in the crankcases of your motors . . . it *re-enforces* lubrication and guards those vital upper cylinder areas where lubrication failures and many truck motor troubles start.

Added to all oil, transmission, differential and steering greases, it assures quicker starts and easier shifting and steering—it pours at 70° below zero! Added to gasoline, it prevents the accumulation of power-killing fuel residues and gums. MARVEL MYSTERY OIL is a remarkable aid to winter-time fleet operation. Ask for the facts. EMEROL MANUFACTURING CO., INC., 242 W. 69th St., New York 23, N. Y.

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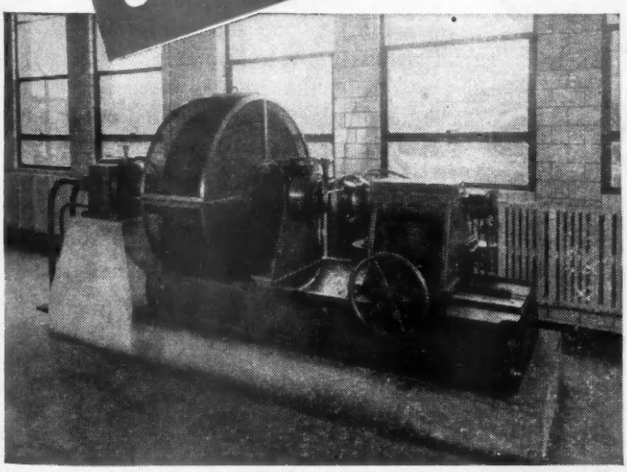

American Brakeblok Brake Linings are made with the utmost care on modern machinery. To insure uniform quality, samples are taken from each day's production and tests made to make sure the material meets the standards set up by the engineers for each class of service.

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NAPA National Automotive Parts Association — Assurance of Quality

AMERICAN Brake Shoe COMPANY

American Brakeblok Division • DETROIT 9, MICH.

ELECTRIC ARC WELDING

(CONTINUED FROM PAGE 124)

PREPARATION: Remove parts surrounding broken section and from area where reinforcement is to be installed. Chip or grind the break to approximately at 45 deg. bevel until a space of 3/32 in. to ⅛ in. is obtained between the beveled edges at the bottom of the groove. "V" groove may be made on either side of channel depending upon which side will be easier.

NOTE: This grinding operation will identify to the welder the type of the steel in the frame. The type of spark will show whether the frame is alloy, heat treated, or otherwise. (See spark testing chart in appendix.) Alloy steel heat treated frames have about double the strength of pressed steel unheated frames. When alloy steel heat treated frames are welded (and not re-heat treated), they are no stronger at the joint than untreated frames. For this reason, it is necessary to use a reinforcement to double the original frame section and restore the original strength.

The reinforcement may be a pressed steel channel of at least the same thickness as the frame and at least four to five times the depth of the frame in length, and with other dimensions such that the reinforcement will fit snugly either inside or outside of the original frame channel. Jack the frame into alignment and clamp to hold securely.

ELECTRODE: A.W.S. E.-6010 all position, positive polarity electrode. The size of the electrode depends upon the thickness of the frame and the accessibility of that point.

WELDING CURRENT: Reverse polarity (electrode positive).

WELDING PROCEDURE: Weld top and bottom flanges of the channel first. Then weld the vertical crack starting at the top of the joint and weld downward. Welding may be done from either side. Chip and wire brush each bead to remove slag. Weld any defects before applying the next bead and fill up weld craters. Top and bottom welds should be 10 per cent greater in thickness than the thickness of the flanges.

When the welding of the break in the frame member is completed, permit it to cool. Then, on the side where the reinforcing channel is to be fitted, grind the weld beads flush with the adjoining surfaces of the frame. Clamp the reinforcing channel in place for welding.

Weld the reinforcing channel to the original frame channel at the outer edges of the flanges *only*, do *not* weld the reinforcing channel at its ends.

TREATMENT AFTER WELDING: Protect welds against drafts and permit to cool. Keep jacks under frame until welded area is cool.

To strengthen the repair further, a few rivets can be placed along the center line of the web of the channel to add more strength by fastening the reinforcement to the frame.

Clutch Spline Shaft

JOB: To repair worn splines on end of clutch shaft.

MATERIAL: Generally S.A.E. 3140 steel, heat treated.

• (TURN TO PAGE 128, PLEASE)

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KEM offers
NEW EFFICIENT PACKAGES
KEM's bright new packages are strong and protect their contents. Big serial numbers make it easy to find the right part quickly. This saves time for stock clerks and mechanics
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For Ignition Parts & Fuel Pumps
KEM has taken the guesswork out of maintenance and repairs by providing fleet owners with a single reliable source from which they may satisfy all their needs in starting, lighting and ignition parts, and for fuel and vacuum pumps.
Carefully assorted and scientifically packed in assemblies that are planned to fit the needs of any shop—large or small—KEM replacement parts are mechanically prefitted.
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KEM's Trouble Shooting Motor Manual. A helpful handbook, 127 pages, clear, complete answers to ignition and other motor troubles. Amply illustrated, highly informative, written by engineering expert. Previously sold—now given Free during this December. Offer ends Jan. 1. Send postcard saying, "Send Free: Kem's Trouble Shooting Motor Manual" to your Jobber now.
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OILS . . . FLUIDS . . . COMPOUNDS

ELECTRIC ARC WELDING

(CONTINUED FROM PAGE 126)

PREPARATION: Degrease or steam clean and test (magnaflux) for hidden cracks. Take hardness reading so that the proper heat treatment may be given the part when the welding and machining is completed. Full anneal the part before welding.

ELECTRODES A.W.S. E-10010, 1/8-in. diameter.

WELDING CURRENT: Reversed polarity (electrode positive), direct current, 110-130 amp.

PREHEAT: To approximately 600 deg. Fahr.

WELDING PROCEDURE: Weld from open end of the spline toward closed end. Fill crater before withdrawing electrode. Remove slag from crater before restriking arc. Remove slag from bead before applying another bead. Build up any bearing surfaces within 2 in. of welded area as shrinkage renders the surface undersize.

TREATMENT AFTER WELDING: Immediately after welding and before cooling, the part should be placed in the annealing furnace and be fully annealed.

MACHINE WORK: Machine part to proper size.

HEAT TREATMENT: Give the heat treatment required for the type of alloy steel to restore it to original hardness.

NOTE: Other automotive parts made of S.A.E. 3140 or similar heat treated steel that can be welded by following the above procedure are gear shafts, propeller shaft spline and axle-drive shaft.

A few shops, under emergency conditions, are using a procedure similar to the above in repairing worn and broken transmission gears, usually of the heavy-duty-truck sizes. The cost is usually less than one-half that of new gears.

Engine Crankshaft

JOB: To repair a crankshaft which has broken at the cheek of one throw:

MATERIAL: S.A.E. 1045 steel (neither tocco-hardened nor pack-hardened).

PREPARATION: Steam clean or degrease the shaft thoroughly. Test entire crankshaft for cracks (magnaflux method). Take a hardness reading for later heat treatment. Machine a double-"U" groove across cheek sufficiently wide to permit the use of 5/32-in. and 3/16-in. electrodes. Allow 1/8- to 5/32-in. space between bottom edges of "U" groove bevels.

Set crankshaft in a holding fixture and align for correct dimension of the broken throw. Lay out tram marks with dividers on both sides of "U" groove, far enough away from weld so that punch marks will not be destroyed in welding. Center punch the tram marks with a sharp center punch. Set dividers or trans to exact measurements of the punch marks.

If heat treatment after welding is desired, normalize the crankshaft at 1600 deg. to 1700 deg. Fahr.

Align crankshaft in welding holding fixture and spread ends of break 1/32 in. to allow for shrinkage in welding. Fit a copper back-up bar at the opposite side of the initial root bead.

PREHEAT: The immediate area of weld to approximately 600 deg. Fahr.

(TURN TO PAGE 132, PLEASE)

In CARS, TRUCKS and TRACTORS most block and head cracks are repaired *RIGHT IN THE CHASSIS*

THE K&W WAY

● Engine repair shops everywhere are restoring cracked engine blocks and heads to unimpared service the K & W Way, *right in the chassis!* Even the most difficult repairs, involving more than one crack, seldom take more than a few hours. The result is an *invisible* repair, GUARANTEED for the life of the engine! The amazing K & W Mechanical Method saves costly replacements—cuts dismantling and reassembly time. Used by leading engine rebuilders and the service branches of engine manufacturers. For details see your jobber or write to Kerkling & Company, Bloomington, Indiana.

THREE KIT ASSORTMENTS

There is a kit suitable for every size of shop operation. Kits include all materials and instructions needed to make complete repairs by the K & W Mechanical Method.

K&W *Metallic Seal*

Guaranteed repair for 85 out of 100 block and head cracks immediately!

K&W *Radiator Seal*

Radiator Leak? Try K & W FIRST! If K & W can't fix it, NO SEAL can!

HYCON *Compound Master Cylinder* FOR TRUCKS & BUSSES

Eliminates "Booster" Brake

The secret of *controlled braking* in HYCON Truck Brakes lies in a second piston in the compound master cylinder, which eliminates the necessity for vacuum-air-actuated "booster" brakes. The single HYCON Unit performs hydraulically the combined operations now actuated by fluid, vacuum and air . . . gives more constant, more positive braking control.

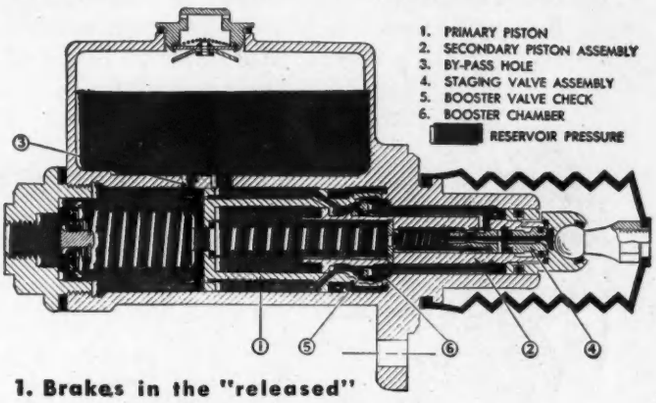
With the HYCON Unit, the hydraulic pressures are in direct proportion to pedal pressures. The correct amount of power is always available to meet load or no-load conditions. Since it eliminates the *lag* required for the atmospheric pick-up on vacuum brakes, it will stop vehicles more quickly.

IMPROVES SAFETY FACTOR

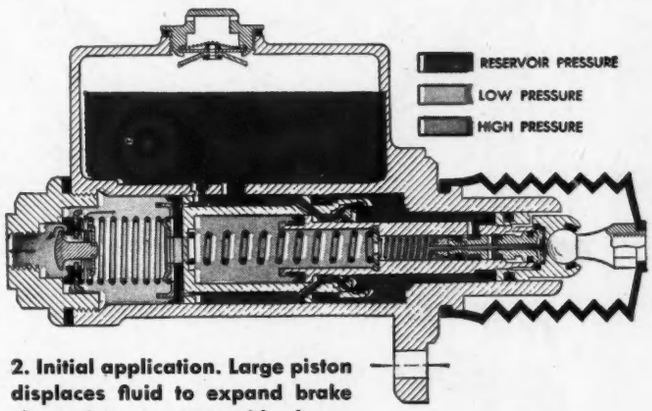
An important safety factor develops from the HYCON principle of a compound cylinder—quicker stopping; better control. HYCON Truck Brakes offer worthwhile savings; you save in fuel and tire consumption, and in maintenance. The unit occupies no more space on the chassis than the original equipment master cylinder; requires no additional tubing, no holes to drill, and can be installed within an hour.

SEND FOR DEMONSTRATOR UNIT

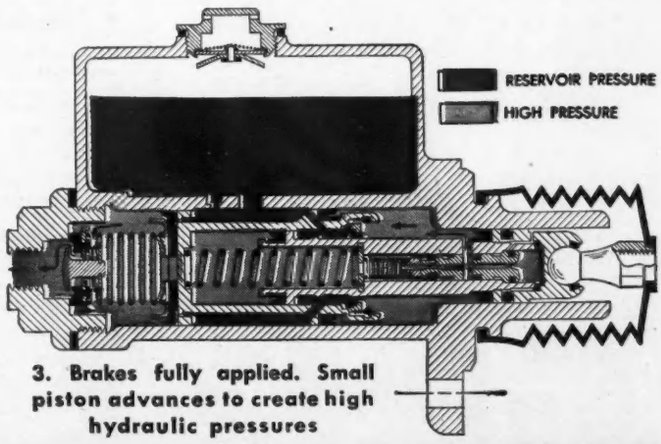
HYCON Truck Brakes are now available to replace 1¼" and 1½" Di. original equipment master cylinders. Order a demonstrator unit from your local power brake distributor, or write direct to The New York Air Brake Company, 420 Lexington Avenue, New York 17, N. Y.



1. Brakes in the "released" position



2. Initial application. Large piston displaces fluid to expand brake shoes into contact with drums



3. Brakes fully applied. Small piston advances to create high hydraulic pressures

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ELECTRIC ARC WELDING

(CONTINUED FROM PAGE 128)

ELECTRODE: A.W.S. E-10010. 5/32-in. and 3/16-in.

WELDING CURRENT: Reverse polarity (electrode positive), direct current, 90 to 180 amp. for 5/32-in. electrode and 140 to 200 amp. for 3/16-in. electrode.

WELDING PROCEDURE: Apply root bead. Remove back-up bar and, if necessary, chip out groove so that next bead, applied on the side opposite the first bead, can be welded into first bead. Thoroughly clean each bead before laying next bead. Succeeding beads, applied on alternate sides, may cause a loss of the true dimensions.

Check length of throw, using dividers or trams on center punch marks, as the beads are applied. If the dimension is shortened, peen the applied beads to expand the area. If the dimension is lengthened, apply more weld metal until shrinkage occurs. Bear in mind when correcting the length by these methods that the throw should have its original dimensions when the weld is complete and cold. With a little practice the welder will learn the amount necessary to correct the dimension as welding proceeds.

Complete the welding operation without letting the weld area become cool, but permit some cooling between consecutive beads so that areas adjoining weld do not become excessively hot and produce dangerous expansion or distortion in the crank cheek.

TREATMENT AFTER WELDING: Cover welded area with asbestos paper to protect against drafts and allow crankshafts to cool to room temperature in the holding fixture. Redrill oil hole in cheek. Give the proper heat treatment, if desired, to restore the hardness of the shaft. Straighten and balance the crankshaft. Regrind the journals if heat-treated.

Engine Crankshaft

JOB: To repair a crankshaft which has broken at a connecting-rod bearing or main bearing. Fracture generally occurs from the fillet area of the bearing through the cheek.

MATERIAL: S.A.E. 1045 steel (neither tocco-hardened nor pack hardened).

NOTE: Crankshafts with tocco-hardened journals are repaired in some shops by removing the hardening at the broken journal and renewing the bearing surface with sprayed metal, using 0.80 carbon wire.

PREPARATION: Steam clean or degrease the shaft thoroughly. Test entire crankshaft for cracks (magnaflux method). Take a hardness reading for later heat treatment.

Machine a circular "Vee" bevel groove around journal sufficiently wide to allow the use of a 5/32-in. and a 3/16-in. electrode. Drill the broken ends of the journal and insert a dowel pin. Use ¼-in. steel dowel pin for passenger car engine crankshaft, and ½-in. or larger, for heavy-duty truck engines.

Set crankshaft in a lathe and align for correct dimension of length of broken journal. Lay out tram marks with dividers on both edges of the cheeks adjoining broken journal and

(TURN TO PAGE 134, PLEASE)

. . . it's Time for Higher S.Q.*

Play safe . . . reline with Grizzly Brake Lining. *Safety Quotient goes up immediately and stays up all through Grizzly's EXTRA LONG life. There's a Grizzly distributor near you—call him today! Grizzly Manufacturing Company, Paulding, Ohio.

THESE GRIZZLY FEATURES MEAN HIGHER S.Q.

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Since the earliest days of the automobile, American Hammered has consistently supplied piston rings that are a year or more ahead of the field. Those to whom efficient, economical engine performance is the only standard of piston ring value demand American Hammered! Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Maryland.

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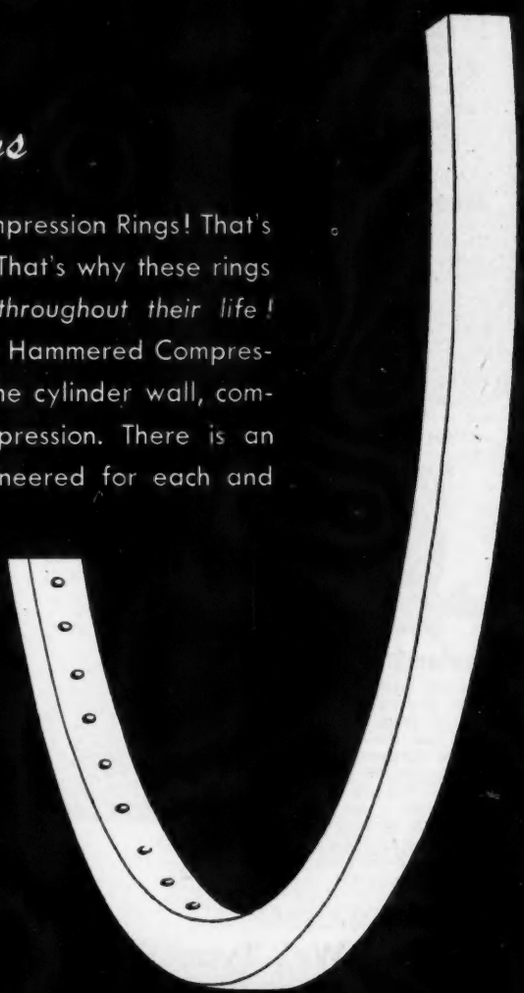
Compression Rings

The tension is *hammered* into American Hammered Compression Rings! That's why their tension is not affected by heat or by wear. That's why these rings *keep their tension, assure dependable performance throughout their life!* The tension hammered into the inside face of American Hammered Compression Rings results in equal outward pressure against the cylinder wall, compensating for wear and maintaining maximum compression. There is an American Hammered Piston Ring Set especially engineered for each and every engine.



American Hammered Piston Rings

A KOPPERS PRODUCT

ELECTRIC ARC WELDING

(CONTINUED FROM PAGE 132)

near the broken journal. Center punch the tram marks with a sharp center punch; set dividers or trams to exact measurements of the punch marks. If heat treatment after welding is desired, normalize the crankshaft at 1600 deg. to 1700 deg. Fahr.

Align crankshaft in lathe or welding holding fixture, spread end of broken journal apart 1/32 in. to allow for shrinkage in welding and tack weld. Tack weld a spacing bar between opposite journals to prevent distortion.

PREHEAT: Preheat the immediate area to approximately 600 deg. Fahr. This can be done with an oxyacetylene torch. Rotate the shaft while preheating. By using tempil sticks, this temperature can be determined easily.

ELECTRODE: A.W.S. E-10010, 5/32-in. and 3/16-in.

WELDING CURRENT: Reversed polarity (electrode positive), direct current, 90 to 180 amp. for 5/32-in. electrode and 140 to 200 amp. for 3/16-in. electrode.

WELDING PROCEDURE: Apply root beads and check for shrinkage. Thoroughly clean each bead before applying next bead. If succeeding beads reduce the true dimensions, peen and expand the area. If they increase the dimensions, apply more weld metal until shrinkage occurs. Bear in mind when correcting the length by these methods that the journal should have its original length when the weld is complete and cold. With a little practice, the welder will learn the proper amount to correct the dimensions as the welding proceeds.

Complete the welding operation without letting the weld area become cool, but permit some cooling between consecutive beads so that the areas adjoining the weld do not become excessively hot and produce excessive expansion or distortion in the crank.

TREATMENT AFTER WELDING: Redrill oil hole. Remove tacked-on spacers. Straighten crankshaft and machine repaired journal to size. If desired, give the proper heat treatment to restore the hardness of the shaft. Straighten shaft and regrind the journal if heat treated. Balance the crankshaft.

NOTE: Alternative method. One shop makes repairs of broken crankshafts by using parts of two different shafts of the same kind. One shaft is machined for a press fit into the hole bored in the other shaft. The two parts are pressed together (press fit) and welded around the end of the dowel. Then, the shaft is put in the lathe, a "vee" groove cut around the journal at the joint, and welded. Hundreds of shafts repaired in this manner are in successful service.

Automotive Propeller Shaft

JOB: To weld connecting yoke hub to tube, or weld spline hub to tube.

MATERIAL: Steel tube, spline shaft, hub and yoke. Alloy steel.

PREPARATION: Remove old weld metal and insert hub to the proper distance into tube. Align the two parts. Tack weld to hold parts in place. Tacking and welding should be done in a lathe.

(TURN TO PAGE 136, PLEASE)

Model H Cylinder Hone
For Wet or Dry Honing
Wider range, lighter weight, greater speed, greater accuracy, finer finish, quick, easy expansion and new, improved Stone Carriers make this Model "H" HALL Hone the biggest Hone value ever offered. Has Micrometer Adjustment; can be used wet or dry. Any good half-inch drill will drive it. Equipped with standard and oversize carriers covering range of 2.6" to 5½". Second oversize Carriers increase range to 6-13/16".
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Now any mechanic can quickly and easily fit piston pins to a rotating, push, or press fit as desired. Eliminates use of costly reamers and reamer sharpening. Dulled or nicked reamers can be used for roughing and hole finished to size with these Hones. Low in first cost; economical to use. Can be used wet or dry with electric drill or in drill press. Made in 3-tool sets covering ranges of .740" to 1.150" and .484" to .750".
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For quick, easy, satisfactory reconditioning of wheel and master cylinders. With them any mechanic can recondition a cylinder in a few minutes at an extremely good profit to the shop. The removal of scratches, corrosion and abrasive from cylinders is imperative if a satisfactory job is to be done. These Hones do the job properly, speedily and profitably. Made in sets for Passenger Car and Universal use.
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Wet grinding prevents surface burning and stem growth; insures finer finish. Model 80 has built-in trouble-free pump and large capacity sump. Workhead doweled for 30°, 45° and 90° valves; dovetail type ways; spring loaded gib compensates for wear; micrometer feed; HALL improved type collets; handles valves to 4" head diameter; V-belt drive; many other exclusive features and special attachments.
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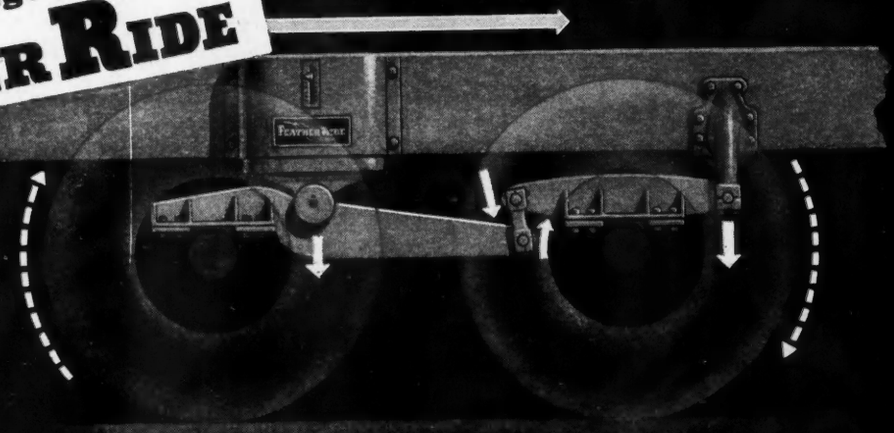

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The Feather Ride design uses the kinetic energy of the "load in motion" to *increase* (not decrease) the gripping power of ALL tires to the road. Brake torque cannot unbalance load relationship between axles. Perfect balance is constant! AND, this is accomplished *without* torque arms, equalizer bars, radius rods, compression bars or other weighty, service-demanding gadgets.

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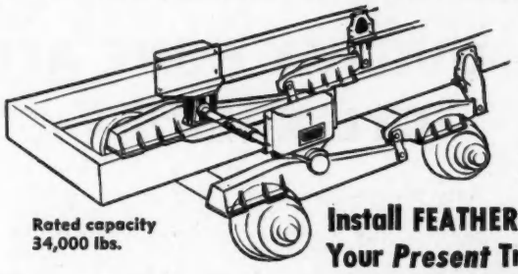
A unit that is trim, tried and trustworthy; Hundreds of pounds lighter; Coil springing with adjustable UNDERLOAD SPRINGS and MECHANICAL SNUBBERS; Rubber mounted throughout; No lubrication necessary; Trailing flexibility; Load indicator.



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TANDEM AND SINGLE AXLE SUSPENSIONS • AXLES
BRAKES • FIFTH WHEELS • FULL TRAILER DOLLIES

COPR. 1945—FEATHER RIDE, INC.

ELECTRIC ARC WELDING

(CONTINUED FROM PAGE 134)

ELECTRODE: A.W.S. E-10010. 5/32 in.

WELDING CURRENT: Reversed polarity (electrode positive), direct current, 120 to 165 amp.

WELDING PROCEDURE: Rotate the shaft to coincide with welding speed. Rotate shaft away from operator. Position of weld puddle during welding should be maintained between 15 deg. and 20 deg. from top center toward the operator. Care should be taken to see that correct length dimension is maintained.

TREATMENT AFTER WELDING: Allow to cool slowly. Check shaft for straightness and straighten if necessary.

Automotive Rear Axle Shaft

JOB: To repair rear axle shafts which have broken near the center of the shaft.

(Emergency Recommendation)

MATERIAL: Alloy Steel.

PREPARATION: Determine over-all length of shaft by fitting together broken section. Examine the shaft metal adjoining the break for cracks extending into shaft. (Magnaflux or other method.) If cracks extend into shaft, the ends of each piece of the shaft must be cut back far enough to eliminate all cracks. For welding, the ends of the shafts should then be cut to a blunt, diagonal, chisel point as shown in figure 5. Blunt point should be about 1/8 in. wide. Shaft ends may be cut either with a hack saw, or with an oxyacetylene torch, followed by rough grinding to remove burning burrs and burnt steel.

Lay the pieces of the shaft in "Vee" block and space to give the proper length to the finished shaft. From another shaft of the same type and material cut and fit a section between the two pieces of the original shaft. Cut the ends of the section to a blunt, diagonal, chisel point similar to the ends cut in the original shaft pieces.

ELECTRODE: High tensile, nickel steel or A.W.S. E-6010.

WELDING CURRENT: Reverse polarity (electrode positive), direct current, amperes suitable for rod used.

WELDING PROCEDURE: Place pieces in "Vee" blocks to keep in alignment while welding. Tack weld at each end of blunt chisel point. Weld two beads at bottom of groove on each side. Be sure that fusion is complete through the blunt chisel points. Clean each bead carefully before applying next bead. Fill up craters. Alternate, laying two beads on each side until within 3/16 to 1/4 in. of outside surface of shaft. Grind and clean surface of beads to remove rough ends and any slag. Finish building up weld with beads parallel with center line of shaft and across the lower beads. Build weld above the adjoining surfaces of the shaft to allow for machining. Proceed to weld second joint in similar manner.

TREATMENT AFTER WELDING: Cover welds with asbestos paper to protect against drafts and allow to cool slowly.

If straightening is required, it is preferable to do it at a temperature of approximately 600 deg. Fahr. Machine welds down to as large a diameter as possible which will give suffi-

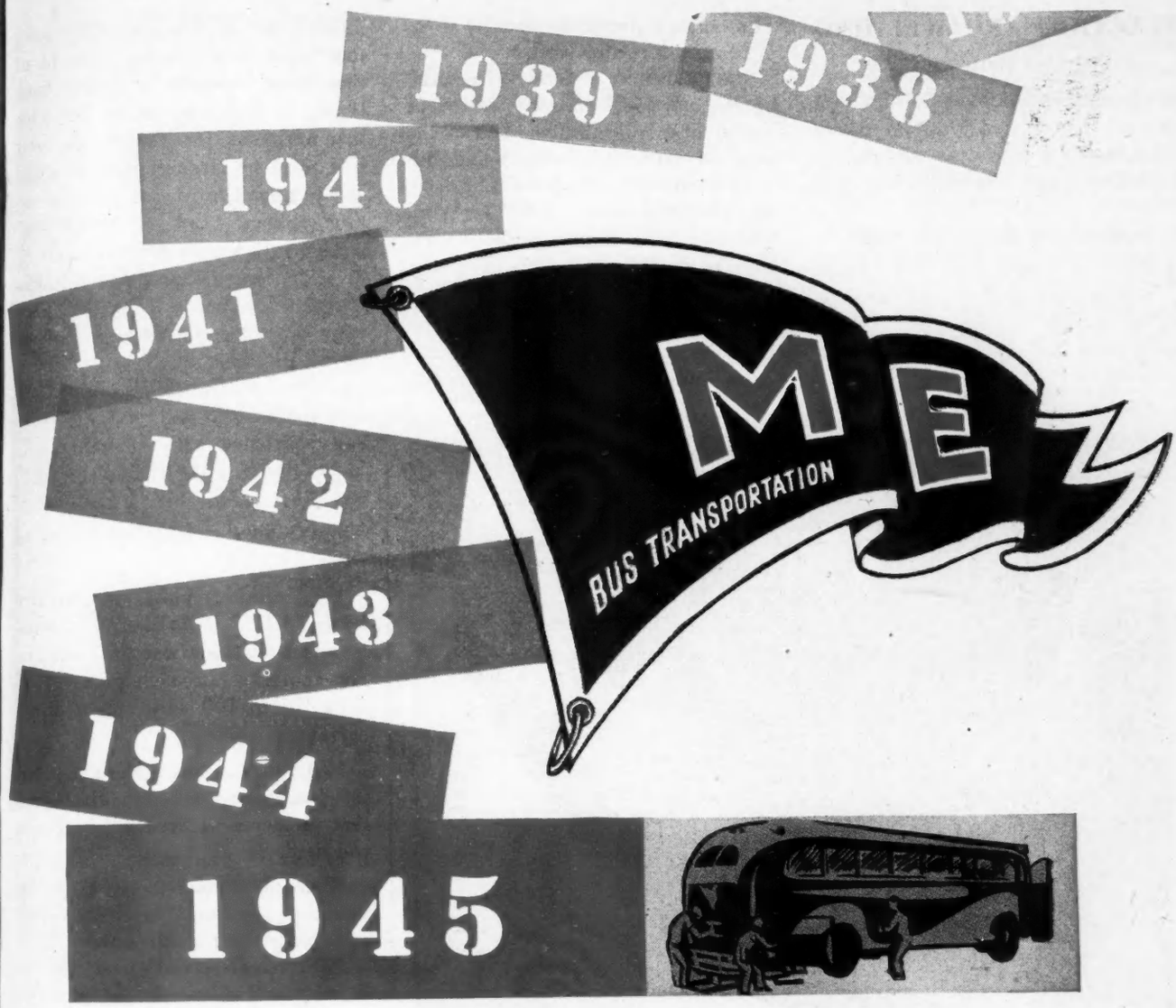
(TURN TO PAGE 138, PLEASE)

QUICKLY HONE ALL BRAKE CYLINDERS—¾" to 2½"

Any shop can now handle complete, more profitable service on every type brake cylinder from ¾" to 2½" ... through the use of AMMCO Brake Cylinder Hone Kits. The precision hones in these kits will correct any corrosion, pitting or roughness on brake cylinder walls—resulting in smooth, easy plunger operation and positive braking. Fast, accurate and economical. Mechanics need no special skill to get perfect results from the start. Kits available in various hone body combinations to fit every need. See your AMMCO Jobber now—or write us.

ARMY E NAVY

AUTOMOTIVE MAINTENANCE MACHINERY CO.
2100 Commonwealth Ave. North Chicago, Ill.



AND AGAIN Snap-on Tools ARE THE STANDOUT CHOICE FOR EFFICIENT MAINTENANCE

IN Bus Transportation's 1945 Maintenance Efficiency Competition, 15 bus operating companies win the coveted ME pennant, "for outstanding maintenance performance in the face of continuing handicaps created by wartime operation".

Again Snap-on tools are the overshadowing choice of the contestants . . . with Snap-ons ranking 8-to-1 over other makes of service tools in the preference of the winning companies.

Since the inauguration of Bus Transportation's awards in 1930, Snap-on tools have been the almost unanimous choice of winners. In every field of transportation Snap-ons hold equal recognition as *dependable aids to efficient maintenance.* Write for catalog of the complete line of more than 3,000 Snap-on tools.

SNAP-ON TOOLS CORPORATION
8026-L 28th AVENUE KENOSHA, WISCONSIN

ELECTRIC ARC WELDING

(CONTINUED FROM PAGE 136)

cient clearance in axle housing sleeves. Check and true up flange mounting face to remove any runout by taking a light cut across the face.

Automotive Rear Axle Shaft

JOB: To repair rear axle shafts which have broken near the ends of the splines. Failures generally occur from 1 to 2 in. back from splined section.

(Emergency Recommendation)

MATERIAL: Alloy steel.

PREPARATION: Cut fractured splined portion from long section of shaft. In a lathe turn the end of the long section to a 120-deg. point with a ⅜-in. diameter flat point. Cut away all fractured steel. Drill a ¼-in. diameter hole, approximately ½-in. deep in the blunt point, on the center line of the shaft. (For doweling.)

Prepare a section to be welded on the long section of the shaft. Since axles are usually chrome-nickel, nickel, or molybdenum alloy steel, the "welded-on" section must be of like metal. Usually a section from larger, broken axle can be found for this purpose. The "welded-on" section must be large enough in diameter to permit turning to size and cutting splines. Cut a "welded-on" section to a length approximately ¼ to ½ in. longer than finished length. Machine one end to a 120-deg. point with a ⅜-in. diameter flat point. Drill ¼-in. hole on the center line as was done on the other section of the axle shaft. Join sections (welded-on and shortened axle) together with ¼-in. dowel pin to hold in alignment.

ELECTRODE: High tensile, nickel steel.

For certain repairs, 14 per cent nickel, A.I.S.I., type 316, ⅛-in. stainless-steel electrode was used with reverse polarity (electrode positive), 25 volts, 75 to 100 amp., on a direct-current machine.

WELDING CURRENT: Reverse polarity (electrode positive), direct current, amperes as needed for size of rod used.

WELDING PROCEDURE: Place assembled pieces on "Vee" block holder to keep shaft in alignment. Begin with circumferential pass around dowel pin, fusing only the pins and points of sections together. Clean bead after each pass with sharp tool and/or brush.

After first pass, all other passes are made longitudinally, staggered in position circumferentially, to hold alignment. Continue longitudinal passes around shaft circumference, with thorough cleaning after each pass, until weld exceeds shaft diameter enough to permit cleaning and sizing on a lathe.

TREATMENT AFTER WELDING: Protect weld against drafts and permit to cool slowly. If straightening is necessary, it is preferable to do it with the weld area heated to a temperature of approximately 600 deg. Fahr.

Turn to size (diameter and overall length) in a lathe and mill new splines. Cost of repairs may exceed new shaft cost in some cases.

END

(Please resume your reading on P. 49)

but who checks your SPRINGS?

Call nearest Rowland Distributor. He's supplied by these branches:
ATLANTA 3, Ga., William and Harvey Rowland, Inc., 449 Marietta St., N. W.
BIRMINGHAM 3, Ala., Birmingham Spring Service, Inc., 2017 Avenue B, South
CHICAGO 16, Ill., William and Harvey Rowland, Inc., 2732 Indiana Avenue
JACKSONVILLE 4, Fla., Jacksonville Spring & Alignment Co., 137 Jefferson Street
PHILADELPHIA 30, Pa., William and Harvey Rowland, Inc., 1414 Fairmount Ave.
PITTSBURGH 13, Pa., Point Spring Co., 419 Melwood St.

• Your maintenance department needs all the help it can get. One sure way to see that your vehicles' springs are properly serviced is to make certain they get the practical, experienced care that only spring specialists can give them and such specialized care is available from nearly a thousand Rowland Spring distributors. They offer a wealth of experience in servicing thousands of trucks and buses. Call Rowland distributor near you for periodic spring inspection and service, as well as replacement SPRINGS, mufflers, wheel suspension parts and universal joints.

CERTIFIED ALLOY STEEL ROWLAND SPRINGS Est. 1795

WM. and HARVEY ROWLAND INC.
FRANKFORD, PHILADELPHIA 24, PENNA.
SPRINGS: MUFFLERS • WHEEL SUSPENSION PARTS • UNIVERSAL JOINTS

150th ANNIVERSARY OF AMERICA'S OLDEST LEAF SPRING MANUFACTURER

TIMKEN'S NEW AXLES

(CONTINUED FROM PAGE 82)

speed or "slow" to "fast" in a split second — without de-clutching. The Easy Power Shift controls the movement of a sliding clutch collar which engages one or the other of the two spur pinions. Final sliding of the clutch collar into engagement with "slow" or "fast" speed helical pinion is done by a spring which provides a cushioning effect. Correct spring pressure insures positive engagement with no undesirable shock loads on the gear teeth.

The power for shifting axle ratios is furnished by a vacuum or compressed air power chamber front-mounted on the axle, operating through a bell crank inside the housing. All moving parts are enclosed; no lubrication is required.

Axle housings in both axles are similar in design, made from highest grade malleable iron with inserted heat-treated alloy steel sleeves. The U-300 Axle has larger housing sections for its greater load-carrying capacity.

New axle shafts are claimed to be the strongest for a given spline diameter ever produced. They are forged of Timken "Axaloy" steel by Timken's patented "Torsion Flow" method which makes the flange grain structure conform to the profile of the shaft for equal distribution of stresses throughout its length. Inner ends of these shafts have 16 slant-sided splines so proportioned that a larger relative diameter body of greater strength is possible. Splines are stronger, and are enveloped by the mating splines in the differential side gear hub. The shorter splines result in increased body length to absorb torsional wind-up. Shafts are heat treated to obtain a new high Brinnel hardness at the outer surface with a graduated hardness reduction toward the center.

Drive units, together with axle shafts, are identical in both axles. The differential carrier is mounted on the sloping front face of the axle housing and is readily removable for inspection. Differential bearing legs are dowelled in the axle housing to eliminate deflection under heavy torque load.

Increased strength of differential gear teeth is provided by a new differential with a 9-16 tooth combination. Differential side gears and pinions have hardened steel thrust washers of ample area for minimum wear. Spider trunnions have larger diameters, and the differential gears are mounted in forged steel cases.

Maximum ground clearance and full overhead clearance at the axle housing bowl are realized with these new axles. Track on both axles is 72 in., with 11.00 x 20 tires on dual disc wheels with 12¾-in. spacing. Timken hubs for disc wheels are mounted on large capacity wheel bearings spaced to obtain correct load distribution between inner and outer bearings.

Operators have their choice of two brakes—Timken "P" Power Brake or "DP" Dual Primary Hydraulic Brake. The "P" Power Brake is designed especially for power operation. Drums are 16½ in. in diameter, allowing ample space for ventilation to assure cool running and long life in

(TURN TO PAGE 143, PLEASE)

Flexibility
Flexibility without fatigue! Blood Brothers Universal Joints are constructed for great torsional capacity, stamina and trouble free performance.
FREE ENGINEERING DATA: Write Dept. 16 for engineering bulletin and specifications on all Blood Brothers Universal Joints.
BLOOD BROTHERS
UNIVERSAL JOINTS
BLOOD BROTHERS MACHINE CO.
ALLEGAN, MICHIGAN
DIV. STANDARD STEEL SPRING CO.

BONNEY "Versatile" SOCKETS

● Over 1000 combinations! Five drive sizes from ¼" to 1"! With Bonney Sockets you can handle any nut-turning job in the books. And do it faster, better and easier too! Easy to attach and detach, each Bonney socket and attachment is designed, machined and heat treated to exacting specifications. For the easiest-working, longest lasting socket wrenches, see your nearby Bonney distributor or jobber.

BUY VICTORY BONDS AND KEEP THEM

BONNEY FORGE & TOOL WORKS
635 N. Meadow Street, Allentown, Pa.

In Canada: Gray-Bonney Tool Company, Ltd.
St. Clarens & Royce Aves., Toronto

TIMKEN'S NEW AXLES

(CONTINUED FROM PAGE 141)

severe service. Shoes are 7 in. wide, reducing friction, wear and "fading." Lower pressure per square inch of braking surface increases liner life.

The new Timken heavy-duty "DP" Dual Primary Hydraulic Brake (16½ in. drums, 7 in. wide shoes) is a simple, two-shoe, one-wheel cylinder hydraulic brake in which both shoes function with equal effectiveness in both forward and reverse directions. New design is reported to actually reduce necessary adjustment and maintenance.

END

(Please resume your reading on P. 84)

FABCO POWER TAKE-OFF

(CONTINUED FROM PAGE 92)

used in conjunction with the dual drive for traction, give full engine power "standing" or "walking" and eliminate the longer wheelbase required for split shaft power take-offs, or the expensive alternative of separate engine drives for truck and equipment.

With the elimination of one gear, the FABCO Transfer Case can also be used as a split shaft power take-off in single drive axle trucks. This is designated as the Model TC-85 and is available in two ratios, 428 r.p.m. for 1000 engine r.p.m. and 666 r.p.m. per 1000 engine r.p.m., both with opposite engine rotation. The box is only 13 in. face to face of flanges by 18¼ in. wide with the outlet shaft 6 in. from the main shaft. The box may be mounted so that the outlet shaft may be anywhere from along side to vertically above the main propeller shaft.

Out of the combination of the TC-85 and the "Power Towers" described above comes still another unit—the double outlet power take-off for crane drives. Both outlet shafts develop full engine torque, with one outlet for the "lift" and one for the "swing." This model affords any combination of "stand, lift and swing," or "walk, lift and swing."

The FABCO Dual Drives, "Power Towers" and split shaft power take-offs are available through the distributor organizations throughout the United States.

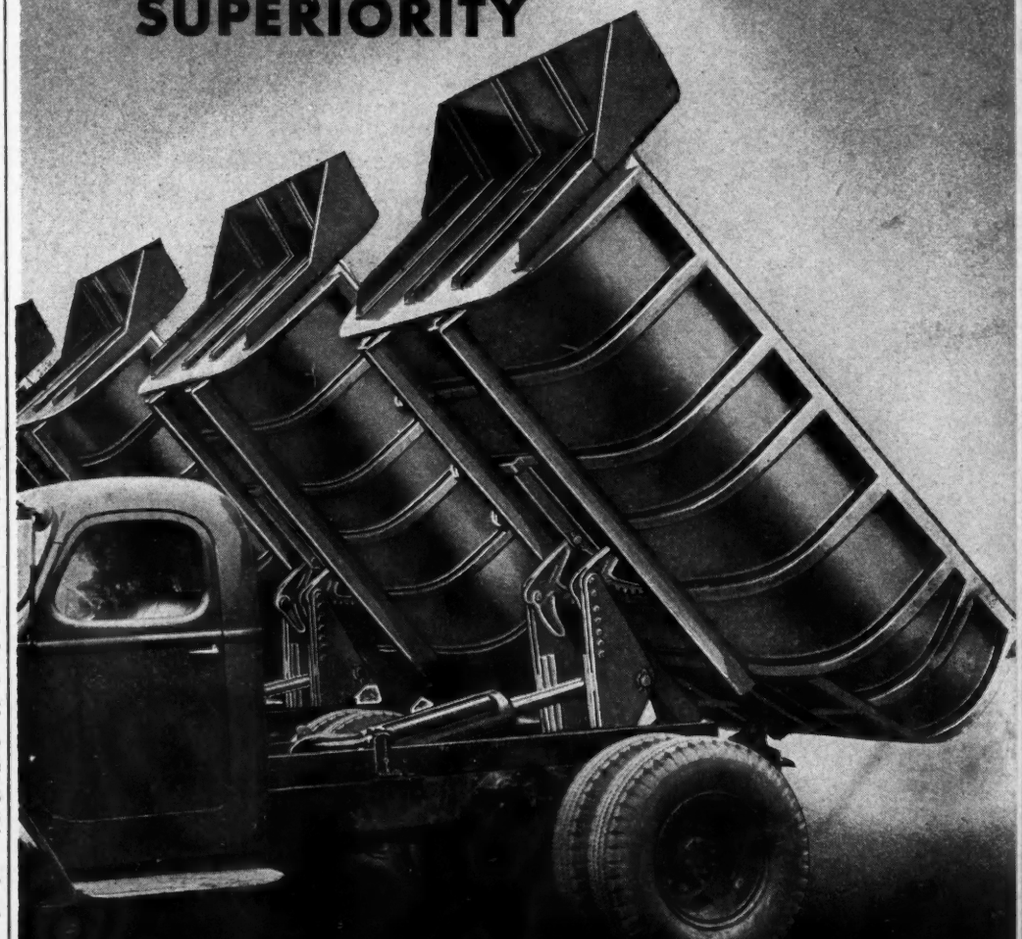
END

(Please resume your reading on P. 94)

FOR HEAVY WORK . . .

GALION

HYDRAULIC DUMP BODIES HAVE PROVEN THEIR SUPERIORITY



Thousands of truck operators from coast to coast depend on Galions for their heavy material hauling work. Make your next dump trucks GALIONS.

THE GALION ALLSTEEL BODY CO., GALION, OHIO

WHAT IS IT?

IT'S TOO DARK TO READ THE LETTERS ON THE SIGN AHEAD, BUT THE TRUCK-DRIVER KNOWS THAT HE IS COMING TO A....

☐ RAILROAD CROSSING ☐ SCHOOLHOUSE
☐ CURVE ☐ THROUGH-TRAFFIC ROAD

Answer on Page 166

WESCO
CHAINS FOR TRACTION
As more tire chains become available for civilian use, it will pay to standardize on WESCO TIRE CHAINS for:
(1) maximum traction;
(2) longer wear, heavy welded cross-chains;
(3) greater convenience — easy-on-easy-off buckles.
(Double Service) (Standard)
WESTERN CHAIN PRODUCTS CO. 1801 BELMONT AVENUE CHICAGO 13

COST OF DRIVER TRAINING PROGRAM

(CONTINUED FROM PAGE 57)

specialist in his line and does an excellent job.

Each trainee is paid $4 a day for his expenses. This is for pre-employment driver training, so that no salary is paid the trainee—only his daily living expenses.

The older drivers already employed are paid their regular hourly rate, plus the $4 a day living expenses, when they are brought in for retraining and upgrading.

All new men must attend this driver training school before being assigned to any regular driving job. The length of time required for the trainee to learn the subjects taught will naturally vary with his previous experience. A man who has been driving tractors and trailer regularly for a number of years can complete this school in two days, while a man who has merely driven straight jobs would likely require the full course which extends over a period of five days. Fig. 1 shows a schedule of the full course of instruction.

This fleet puts an average of six men through this course every week. The driver training instructor visits the major terminals of the 14 in the system. Applicants and drivers scheduled for retraining in the smaller terminals go to a major terminal for their training.

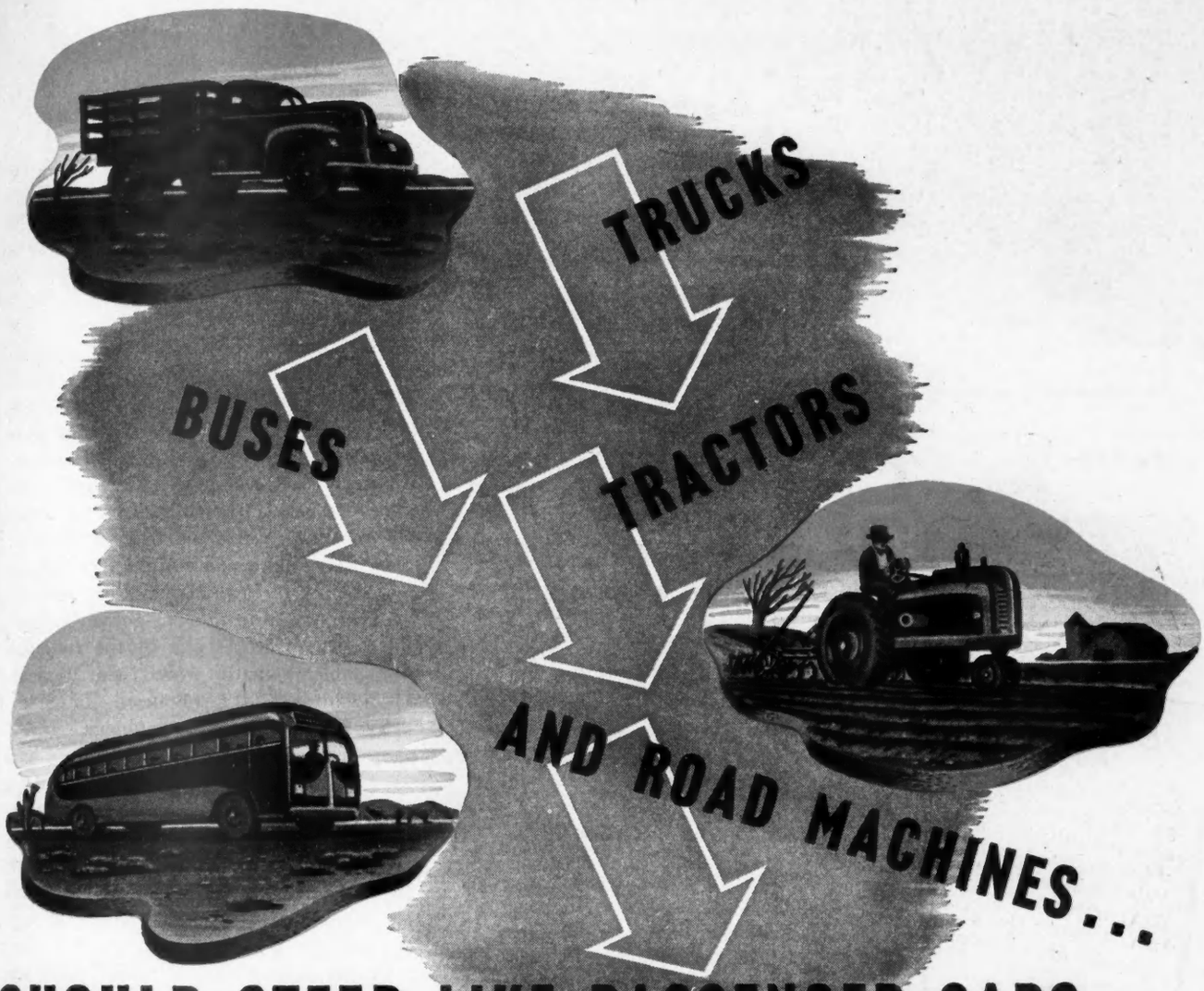
Taxicab Driver Training

AN example of a successful driver testing and training program is provided by the city-wide safety organization sponsored by the taxicab operators in Boston, with the cooperation of the insurance companies.

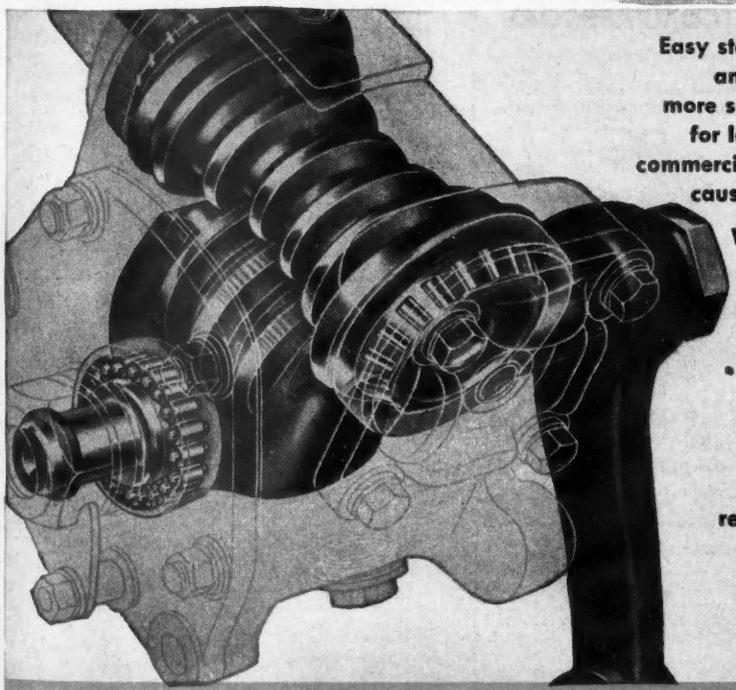
In Boston there are approximately 500 cab owners, operating more than 1200 taxicabs and employing in excess of 3000 drivers. The majority of the owners operate only one to five taxicabs, there being but a few large fleets, the largest having 275 cabs. The business has always been highly competitive, and the feeling between the small, independent owners and the operators of the larger fleets has been far from good.

Wartime restrictive regulations as to mileage, gasoline and tires, plus a

(TURN TO PAGE 146, PLEASE)



SHOULD STEER LIKE PASSENGER CARS



Easy steering is just as important in trucks, buses, tractors, and road machines as in passenger cars and perhaps more so, for in most cases they are operated continuously for longer periods. The operator stays at the wheel of a commercial vehicle for hours at a stretch—and hard steering causes serious fatigue.

When equipped with Gemmer Steering these vehicles steer with an ease comparable to that of a passenger car. The fatiguing, heavy work is absent.

Design of the Gemmer Steering Gear is simple, sturdy. The hour glass worm—mounted on roller bearings—bears on gear teeth that roll—providing highest efficiency—smooth, easy transfer of power. Design banishes "lost motion" and minimizes wear. Steering is always firm, responsive, positive, with absence of rubbery feeling or wander. Maintenance is rarely, if ever, needed.

DRIVERS Will Tell You Gemmer Provides Passenger Car Ease of Steering.

GEMMER MANUFACTURING CO., 6400 MT. ELLIOTT, DETROIT 11, MICH.

A FIREPROOF GASOLINE THAT WILL NOT IGNITE EVEN WHEN SPLASHED DIRECTLY OVER AN OPEN FLAME HAS BEEN DEVELOPED BY...

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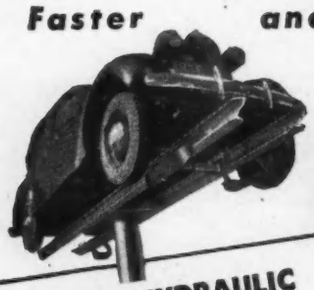
- ☐ PETROLEUM ADMINISTRATION FOR WAR
- ☐ THE ACADEMY OF SCIENCES OF RUSSIA
- ☐ THE BOARD OF ECONOMIC WARFARE

Answer on Page 170

Faster and Better Work At Lower Cost Will Be Done With



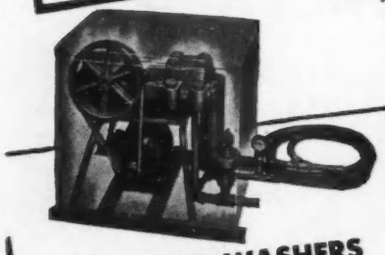
CURTIS

AIR COMPRESSORS
HYDRAULIC AUTO LIFTS
CAR WASHERS

Curtis HYDRAULIC AUTO LIFTS

Curtis Lifts make those "hard-to-get-at" jobs easily accessible. Enable you to handle an increased volume of business and satisfy those "always-in-a-hurry" customers. Built by one of the pioneer lift manufacturers, Curtis Lifts operate day after day with a minimum of attention.

You'll be able to get the famous CURTIS line of dependable service equipment — long lasting, efficient, economical — proved by many years of intensive service in all types of automotive service establishments.



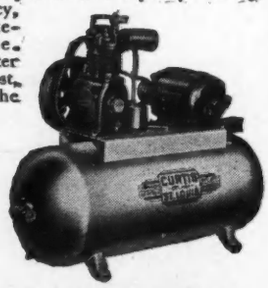
Curtis CAR WASHERS

Clean the entire car, speed work, cut the time per car. They attract customers — and often show up needed repairs and adjustments that hand washing won't disclose. The economy, proven reliability, and low first-cost of Curtis Washers make them an outstanding value for any shop.

Curtis AIR COMPRESSORS

Equipped with roller bearings, are self-oiling, fully enclosed. It pays to have an adequate, thoroughly dependable supply of air at all times. Curtis Air Compressors have proved their capacity for long life, high efficiency, and low-maintenance expense. They insure better work, at less cost, regardless of the heaviest, continuous-duty demands.

Write for complete information, free bulletins, and prices, today.



CURTIS PNEUMATIC MACHINERY DIVISION
Our 91st year
1970 Kienlen Avenue, St. Louis 20, Missouri

CURTIS PNEUMATIC MACHINERY DIVISION *of* Curtis Manufacturing Co.
1970 Kienlen Avenue, St. Louis 20, Missouri CDE-471

• Please send me complete information on Curtis Air Compressors, Auto Lifts, and Car Washers.

Name.....
Firm.....
Address.....
City.....Zone.....State.....

COST OF DRIVER TRAINING PROGRAM

(CONTINUED FROM PAGE 144)

request by the Civilian Defense authorities that the taxicabs be prepared to assist in civilian evacuation in case of enemy action requiring it, provided good reason for the organization of an association of the cab owners of the city. This was accomplished in May, 1942, and the so-called City of Boston Cab Assn. came into being. Its primary purpose was to cooperate with the governmental authorities in the enforcement of necessary regulations, and to assist the members in securing gasoline rations and tire certificates. After a few months of operation the leaders of the Association saw in their organization a golden opportunity to tackle one of the toughest problems with which the taxicab business had been faced for many years—the accident problem.

For a number of years, there had been an average of 6000 accidents a year among the taxicabs in the city. Massachusetts has a compulsory automobile insurance law, which requires that all vehicles, both private and commercial, carry bodily injury liability insurance to pay for personal injury claims. The rates are set yearly, and are based on the experience over a period of from three to five years. The state is divided into zones, and the rates vary in the different zones according to the exposure and experience of the operators. In the present year, the compulsory insurance in Boston on a private car who held a C ration is $48.30; owners who had A or B rations pay correspondingly less. The compulsory insurance rate on a taxicab in Boston is $394 a year, which is $69 more than in 1942. This reflects the accident experience of this type of vehicle.

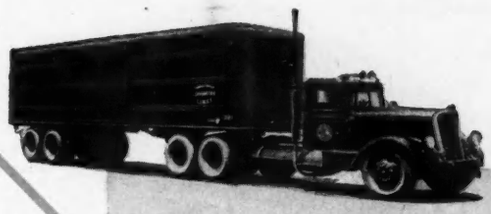
The leaders of the Cab Assn. realized that, though the business is experiencing a wartime boom at present, there will undoubtedly be a definite slump in their income after the war; if, when this slump comes, the compulsory insurance rate has increased from its present level of nearly $400 a year to $450, $500, $550 or $600 a year, the answer is apparent; many of the small opera-

(TURN TO PAGE 150, PLEASE)

...That's Why Actual Records of Big Operators Show 50% TO 80% LONGER WEAR

"Use Only 1/2 As Many Belts"

Actual records of many Fleet Operators who are using Gates Truck Belts show that they are now using only ½ as many belts as they previously had to buy. Cutting belt purchases squarely in half is, of course, a very substantial saving in itself—yet this is actually only the *smallest part* of the savings enjoyed by users of Gates Truck Belts.



You Save *Even More* in Servicing Time and Other *COSTLY DELAYS!*

Every time a belt has to be replaced on a truck or bus, valuable *operating time* of that unit is *lost*. Every delay for belt servicing or belt adjustment takes its toll from the productive operation which is your only source of income. Very often, in critical instances, even slight delays can cost a lot of dollars. Is it any wonder that the belt which so greatly reduces these costs—the Gates Truck Belt—is now used exclusively by hundreds of the most successful operators of truck and bus fleets?

You Wouldn't *THINK* of Using a Passenger Car TIRE on a Truck!

Why Use a Passenger Car Belt?

You know, when you think of it, that trucks and buses put a heavier load on belts just exactly as they do on tires. A typical truck belt, for example, must carry more than 3 times the horsepower load of a passenger car belt. Trucks and buses run longer hours, change speeds more often, accelerate and decelerate more abruptly, with more stops, starts and idling in low gear.

That is why the belt that is specially engineered for truck and bus service—the Gates Truck Belt—is giving its users fully 50% to 80% longer wear in addition to other savings which, as we have noted, are of even greater importance.

When you have read the candid statements of Gates Truck Belt users printed on these pages, we believe you will want to call your jobber and tell him to send you some Gates Truck Belts TODAY!

T 4512

USE ½ AS MANY BELTS — **NEWARK, N. J.**
"Since adopting Gates Truck Belts we are using only half as many belts as before."
Bloomingdale Dairy Co., Inc.

CUTS SERVICE DELAYS — **OAKLAND, CALIF.**
"We are getting fully 75% longer wear with corresponding reduction in servicing time and belt adjustment delays."
Carnation Milk Co.

80% TO 100% BETTER — **KANSAS CITY, Mo.**
"Gates Truck Belts are doing an 80% to 100% better job for us."
Adams Transfer and Storage.

BIG CUT IN COSTS — **NEW ORLEANS, La.**
". . . plays an important part in keeping our maintenance costs down."
Yellow Cab Co.

WEARS 75% LONGER — **NASHVILLE, Tenn.**
". . . gives about 75% longer wear than any other belt we ever used."
Wilson Truck Co., Inc.

90% LONGER SERVICE — **SACRAMENTO, Calif.**
". . . gives 90% longer service than even your pre-war belt."
W. T. Smith, Shop Supt., Gibson Lines.

50% TO 60% MORE SERVICE — **JARREL, Tex.**
". . . giving 50% to 60% more service—far the best we've used."
Jarrel Motor Co.

50% TO 60% LONGER LIFE — **MAYWOOD, Ill.**
"Our records show 50% to 60% longer wear."
Midwest Transfer Co.

Gates Jobbers Now Have Stocks to Serve You

THIS IS A Gates PRODUCT

THE MARK OF SPECIALIZED RESEARCH

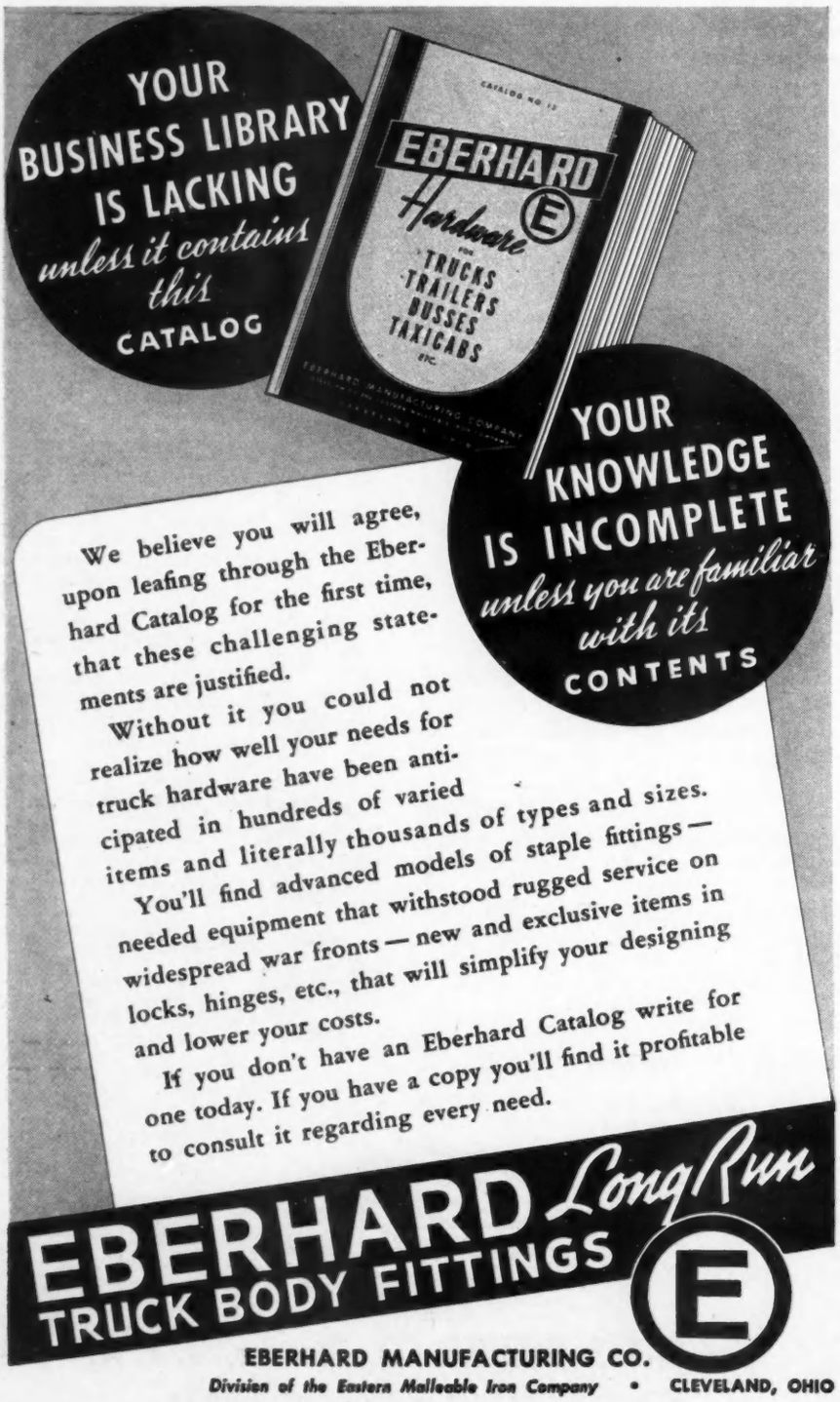
The GATES RUBBER CO., Denver, U. S. A.

World's Largest Makers of V-Belts

WHO DROVE A TRUCK 14,600 MILES NON-STOP ON THE INDIANAPOLIS SPEEDWAY TO PROVE THE ENDURANCE CAPACITY OF THE DIESEL ENGINE ?

☐ ELWOOD HAYNES ☐ ARTHUR HERRINGTON
☐ CLESSIE CUMMINS ☐ RUDOLF DIESEL

Answer on Page 174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We believe you will agree, upon leafing through the Eberhard Catalog for the first time, that these challenging statements are justified.
Without it you could not realize how well your needs for truck hardware have been anticipated in hundreds of varied items and literally thousands of types and sizes.
You'll find advanced models of staple fittings — needed equipment that withstood rugged service on widespread war fronts — new and exclusive items in locks, hinges, etc., that will simplify your designing and lower your costs.
If you don't have an Eberhard Catalog write for one today. If you have a copy you'll find it profitable to consult it regarding every need.
EBERHARD Long Run
TRUCK BODY FITTINGS
E
EBERHARD MANUFACTURING CO.
Division of the Eastern Malleable Iron Company • CLEVELAND, OHIO

COST OF DRIVER TRAINING PROGRAM

(CONTINUED FROM PAGE 146)

tors would be forced out of business, the larger fleets would curtail their operations, and there would be consequent unemployment for cab drivers. With this picture in mind, the Cab Assn. started its efforts to develop its own safety organization.

At first, an attempt was made to interest the insurance companies in setting up the program and financing it. After several conferences between representatives of the two interests —namely, the taxicab operators and the insurance companies—a program was approved which called for support of the work on a 50/50 basis, the cab owners paying half of the operating costs and the insurance companies the other half.

The Accident Prevention Division of the City of Boston Cab Assn. was organized on May 1, 1943 and started its program shortly thereafter.

By agreement with the Boston Police Department, which is the licensing authority for all taxicabs and cab drivers, applicants for so-called hackney licenses are required to first be approved by the Accident Prevention Division. In order to secure this approval, an applicant must pass an eye test, driving test, written test and receive safety instruction.

Driver Testing Procedures

THE minimum visual requirements established by the Division are 20/40 in each of both eyes, ability to recognize color and normal depth perception. At first, a Snellen chart, rod test and colored lights were used in giving these tests, but recently a Keystone tester has been purchased. Since June 1, 1943, when the testing of applicants started, through September 9, 2163 applicants have been tested; of this number, 131, or 6 per cent, have been rejected for visual defects.

The driving test is given in heavy traffic, and includes straight-away driving, backing, turning, curb parking, parking on hills, etc., and 223 applicants, or 10.9 per cent of those tested, failed to pass the driving test. It should be noted that all these applicants hold operators' licenses is-

(TURN TO PAGE 152, PLEASE)

IN BASKETBALL: FIVE MEN MAKE A TEAM

IN HEAVY DUTY OIL

FIVE FACTORS MAKE WOLF'S HEAD SUPREME

On a basketball team each man has a different position to play, yet all *five* coordinate to score. All *five* performance characteristics in Wolf's Head Heavy Duty Oil are coordinated by a superior refining technique. These five factors are: 1. Strong, tough film 2. Resistance to oxidation 3. Non-corrosive to bearings 4. Excellent detergency 5. Fortified for high engine temperatures. All heavy duty oils, to some extent, have one or more of these performance characteristics—but Wolf's Head Heavy Duty has all five, superbly developed to produce the very finest lubrication for heavy duty service.

Operators of leading bus and truck fleets specify Wolf's Head Heavy Duty Oil because it has the quality to stand up under overload conditions—to eliminate unnecessary wear and reduce operating costs. Proof of Wolf's Head Heavy Duty performance is contained in our booklet "Heavy Duty Maintenance." Write for your free copy to Wolf's Head Oil Refinery Co., Inc., Oil City, Pa., or New York 10, N. Y.

LABORATORY CONTROL SERVICE

Gives fleet operators specific recommendations for their units, based on analysis of crankcase oil. Helps to establish correct drain periods, conserve engine life, reduce lay-ups—frequently reveals unsuspected engine troubles. Free and without obligations.

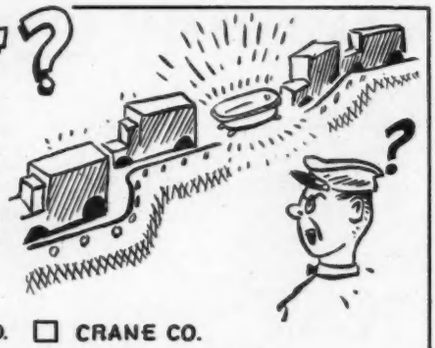
WOLF'S HEAD

MOTOR OIL AND LUBES

100% Pennsylvania P.G.C.O.A. Permit No. 6

WHICH IS IT?

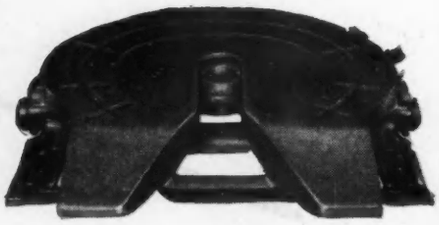
WHICH MANUFACTURER OF TRUCK AND AUTOMOBILE BODIES IS ALSO ONE OF THE NATION'S LEADING MAKERS OF BATHTUBS?



☐ AMERICAN CENTRAL MFG. CO. ☐ CRANE CO.
☐ BRIGGS MFG. CO. ☐ FISHER BODY CO.

Answer on Page 178

You Get *Safety* You Can See
IN THIS 5th WHEEL THAT LOCKS 3 WAYS



What makes a 5th wheel safe? Many things, but you can't have *safety* without *sure protection* against accidental uncoupling. You get *both* in the ASF Safety 5th Wheel—a product of more than forty years of railroad coupler experience.

HERE'S THE PATENTED 3-WAY LOCK THAT NEVER FAILS

All locking parts are located beneath the rugged cast-steel plate. Jaws can always be kept tight by shimming, without removing wheel.

SIMPLE AND SURE. Variations of shading show the three moving elements of the Safety 5th Wheel coupler, in *locked* position. (1) Action of gravity, and a coil spring booster, hold *two* locking arms on a downward slope against the rear king-pin jaw. (2) Near end of counterweighted cam is seated in pocket to eliminate any chance of bounce or *creep*. (3) Safety latch at operating lever prevents cam movement. Tractor pull is directly from the plate through locking arms—*not* through the hinge pins. Find out how *Safety* 5th Wheels can save you money. Write, today! American Steel Foundries, 400 N. Michigan Ave., Chicago 11, Ill.

A·S·F *Safety* 5th WHEEL

COST OF DRIVER TRAINING PROGRAM

(CONTINUED FROM PAGE 150)

sued by the state, and many have been driving for years. Particular attention is paid to how an applicant uses the clutch, and those that slam in the clutch before, or at the same moment as they apply the brake —a definite hazard in icy weather— are rejected, though this, of course, is but one reason for rejection.

In all the tests that have been given, there has been only one accident, and that was when an absent-minded pedestrian walked into the side of the test car just as the applicant at the wheel was driving forward parallel with the curb after having demonstrated his ability to park safely on an uphill grade.

After completion of the eye and road tests, all applicants take a written test. When this test is finished, a discussion of the proper answers is conducted.

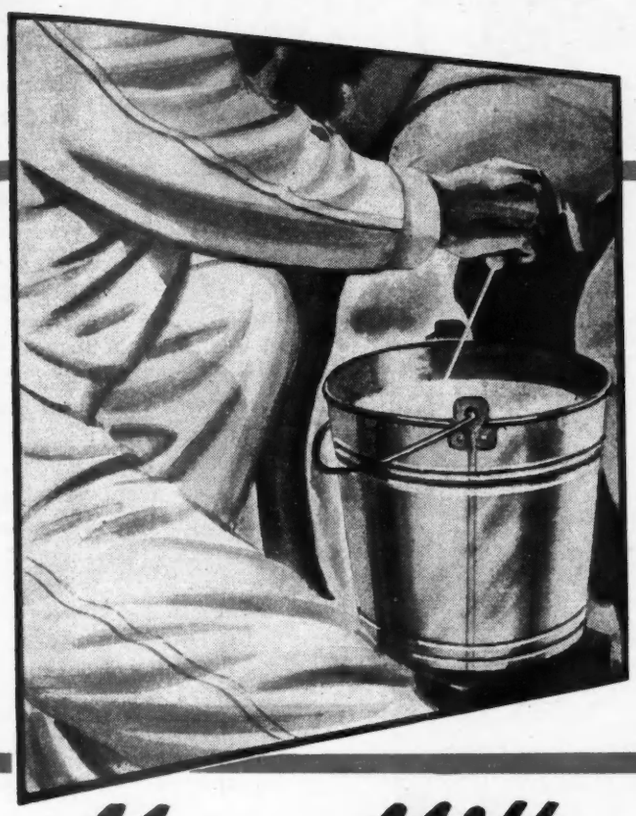
Note: Civil Service for drivers of state cars requires 20/30 in each eye. Only three others are as low as Mass., 20/70; R. I. requires one eye only—20/65.

The safety instruction emphasizes the greater legal responsibility of the driver of a vehicle carrying passengers for hire as compared with that of the driver of a private car, or other commercial vehicles. Massachusetts law holds a cab operator strictly liable for injury to passengers resulting from ordinary negligence on the part of the driver.

The common—and somewhat peculiar—hazards of taxicab operation are discussed, including accidents resulting from sudden stops that throw passengers off the seat; hand and finger injuries caused by careless closing of cab doors, etc. Of course, in addition to the strictly cab hazards, considerable emphasis is placed on the accidents common to all motor vehicle operation, such as intersection accidents, backing up, turning and so forth. The written test and safety instruction take about an hour and a half, but it seems to be a worthwhile investment of time for all concerned.

In addition to the work with the new driver, which has just been de-

(TURN TO PAGE 154, PLEASE)



How Up-to-Date are you on ALUMINUM?

More Milk... less metal!

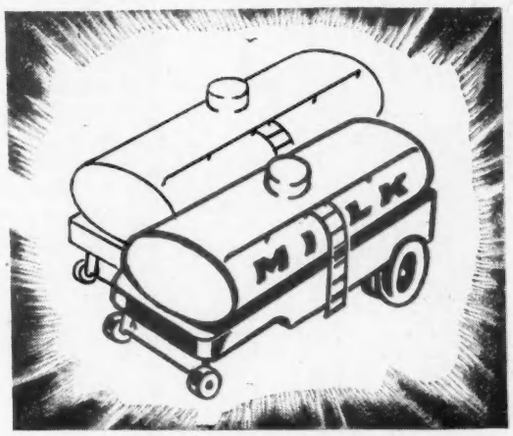
Pound for pound more pay-load!

When you're milking—a strong, light-weight aluminum pail means considerably less for the milker to hold and carry.

When you haul milk, a truck or trailer built of light-weight, high-strength Reynolds Aluminum alloys means less dead-load—*more pay-load.* In other words, lower operating costs . . . less gas-oil-and-tire charge per *ton-mile* of revenue carried.

Get the facts! Reynolds technicians will gladly work with your engineers. Offices in principal cities. Phone nearest office . . . or write: Reynolds Metals Company, Aluminum Division, 1010 Fisher Building, Detroit, Michigan, 2533 South Third Street, Louisville 1, Kentucky.

Consider Aluminum . . . Consult Reynolds



Same size . . . hundreds of pounds lighter! Reynolds Aluminum alloys, properly specified and used in the construction of your vehicle, save up to ½ body weight. Non-toxic . . . highly corrosion-resistant, they cut maintenance costs, add greatly to life span of equipment.

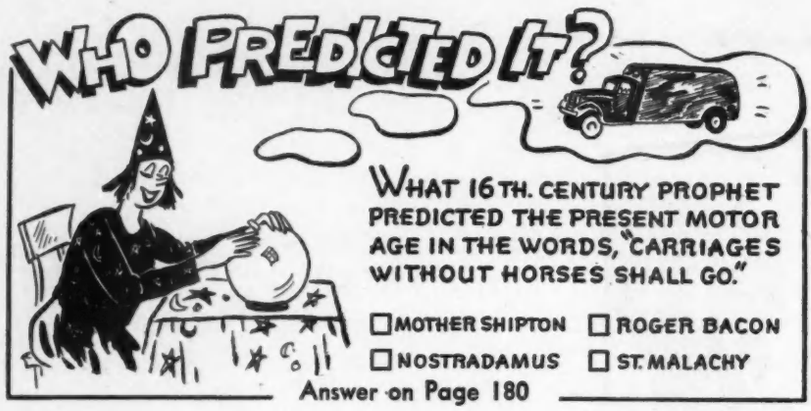
REYNOLDS METALS

9155-A7-9

REYNOLDS ALUMINUM

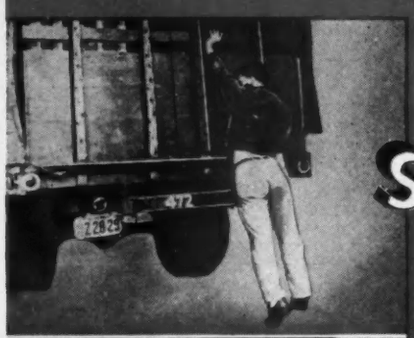
The Great New Source of

INGOT • SHEET • SHAPES • WIRE • ROD • BAR • TUBING • PARTS • FORGINGS • CASTINGS • FOIL • POWDER


WHO PREDICTED IT?
WHAT 16TH. CENTURY PROPHET PREDICTED THE PRESENT MOTOR AGE IN THE WORDS, "CARRIAGES WITHOUT HORSES SHALL GO."
☐ MOTHER SHIPTON ☐ ROGER BACON
☐ NOSTRADAMUS ☐ ST. MALACHY
Answer on Page 180

Speed handling . . . reduce costs . . . lower injury rates . . . with

SAF-T-STEP

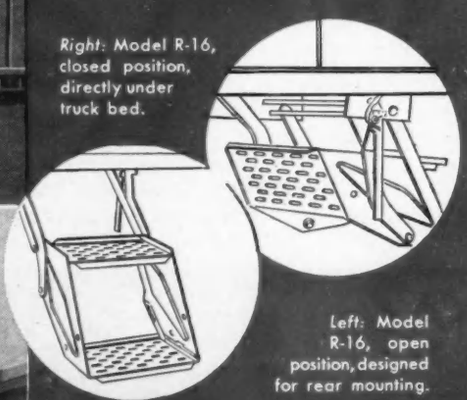


SAF-T-STEP eliminates those dangerous, exhausting strains that injure and wear your drivers down. SAF-T-STEP, the first engineered approach to an old "trucking" problem, makes it possible for one man to do many load and unload jobs that previously required two! 20,000 users now attest to the value of SAF-T-STEP.

SAF-T-STEP, now ready for immediate delivery is constructed to carry a 1000 pound load. Comes in two models, one for rear mounting, the other for side use where hanger space is limited. Both are engineered to fit most flat rack, stake, van, trailer or "semi" bodies with custom like precision.

• See your nearest truck dealer or write direct.

Right: Model R-16, closed position, directly under truck bed.



Left: Model R-16, open position, designed for rear mounting.

SAFETY STEP SALES CO.
1017 S. La Brea Ave., Los Angeles 35, Calif.

COST OF DRIVER TRAINING PROGRAM

(CONTINUED FROM PAGE 152)

scribed, the Division exercises a high degree of control over the drivers holding hackney licenses. The police department requires that any driver desiring to work for a new employer must first be authorized to do so. This means that all drivers must clear with the Division before receiving permission from the police department to change jobs. These cases are referred to as "transfers," and there have been 1844 such during the past year and a quarter.

The Division requires that all drivers involved in accidents submit a brief report to the Division, in addition to the insurance company insuring the cab. Safety record files of all cab drivers in the city are maintained at the Division's office.

An Accident Board of Review, consisting of representatives of the cab owners and cab drivers, has been set up to hear the cases of drivers whose accident records indicate that their transfer to new employers would be unwise. Fifty such cases have appeared before the Accident Board of Review. In ten instances, revocation of the drivers' hackney licenses have been recommended.

The staff of the Accident Prevention Division carries on a program of spot-checking for violations of safe driving practices. Checks are made at dangerous intersections, and the owners of the cabs observed to be operated in a reckless manner are notified. This has acted as a very definite deterrent to excess speed.

Accident Rate Cut 27.9%

WHAT is the result of all these efforts? During the first year of the operation of the Accident Prevention Division, there was a 27.9 per cent reduction in taxicab accident frequency rate as compared with the preceding year. In 1942-43 the frequency rate per 100,000 miles of operation was 10.1; in 1942-43, 7.28. The past three months do not show as notable a reduction—12 per cent, a frequency rate of 7.4 last year as compared with 6.5 this year—but it must be remembered that the comparison is between two periods during which the Division was operating.

(TURN TO PAGE 156, PLEASE)

(Advertisement)

THE PRINCIPLE OF VACDRAULIC OPERATION

The Vacdraulic Booster, as illustrated in Figure (1) has a primary cylinder and a secondary cylinder, both of the same diameter. Fluid from the master cylinder enters the primary cylinder, flows through the control shaft, to the secondary cylinder and from the secondary cylinder to the wheel cylinders.

Line pressure is increased (boosted) by the principle of reduction in diameters as illustrated in Figure (2). If the area of the larger piston was 3 square inches, and the area of the smaller piston was 1 square inch, then fluid pressure of 50 lbs. per square inch in the larger cylinder

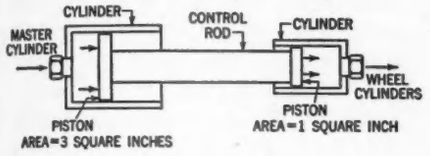


Fig. (1)

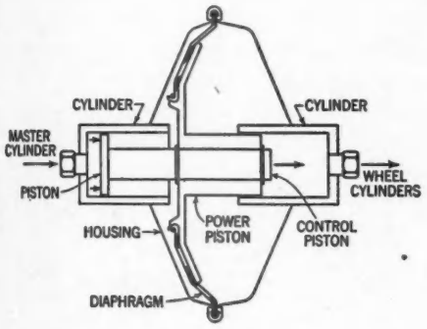


Fig. (2)

would be increased to 150 lbs. per square inch in the smaller cylinder. Obviously, the fluid displacement in the secondary cylinder would be less than that of the primary cylinder if the relative sizes of the pistons remained as aforementioned. To compensate for the loss in fluid displacement volume, the control rod is surrounded by a power piston having the same diameter as the primary piston. The pressure plate of this power piston is connected to the booster housing by a neoprene diaphragm. Vacuum is created (from the manifold) in both sides of the booster housing. The slightest pedal pressure will close the vacuum valve in the unit and open the atmospheric valve to the primary side of the unit. This differential in pressure is utilized to actuate the power piston, which moves with the control piston, thus providing boost in the line pressure with no loss in fluid displacement volume.

Because the control rod is free to move within the power piston, reaction or "pedal-feel" is in direct relation to the applied hydraulic pressure from the master cylinder.

Feather Touch Stopability!

An exciting new safety driving feature for the cars, trucks and busses of today and tomorrow

VACDRAULIC POWER BRAKING

KELSEY - HAYES WHEEL CO., DETROIT, MICH.
Sold to Automotive Distributors by
EMPIRE ELECTRIC BRAKE CO., Newark 7, N. J.

VACDRAULIC is a Trade Mark of Empire Electric Brake Company

COST OF DRIVER TRAINING PROGRAM

(CONTINUED FROM PAGE 154)

Insurance and Costs

NEEDLESS to say, such a reduction in accident frequency will not only result in a decrease in repair costs and ultimately insurance premiums but will also increase the life of the taxicab equipment. With approximately 1800 fewer accidents per year and with the lowered oil, gasoline, tire and maintenance cost that would naturally result from the more careful driving brought about by this accident reduction, the monetary savings will be very substantial. Because of the widespread nature of the many taxicab fleets and individual owners involved in the plans, it was impossible to get together reliable cost figures at this time.

Over against these savings, we have the expense—or rather, the investment—of $12,000 a year for the operation of the Accident Prevention Division. This amounts to $10 per cab—$5 of which was paid for by the cab owners and $5 by the insurance companies. Actually, a complete, separate headquarters was set up for the Accident Prevention Division involving many expenses that would not be incurred within any single fleet that wanted to set up a driver training program.

For this reason, I have made a separate accounting of only those expenses which would accrue to a single fleet operator who used one of his own cabs for driver training purposes rather than purchasing a special car for the purpose as was done in the case of the Accident Prevention Division. This summary includes the salary for safety engineer—or driver training instructor—a secretary and the employer's tax contribution.

Operating expenses include operating costs of the car, eye testing equipment, safety education literature, safety awards, driver safety manual, and a sound slide instruction film. Some of these items might not be considered necessary in an individual fleet driver training program. However, the cost as outlined amounted to $6,150 for the first year of operations—or approximately $5 per cab. If a vehicle were to be kept busy

(TURN TO PAGE 159, PLEASE)

CLEAN ENGINES LAST LONGER

Smooth running, long lasting power requires a clean engine—an engine free of sludge, gum and acid which accumulate in the lubricating system and cause the motor to become sluggish and unresponsive. These petroleum residues are a major factor in destroying engines.

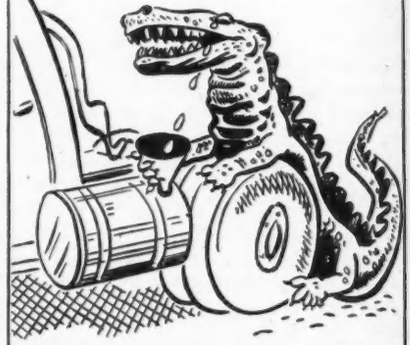
LOOSITE and SILOO, swift-working solvents of petroleum residues act quickly and safely to eliminate sludge, gum and acid. LOOSITE cleans out the engine—then SILOO added to fresh crankcase oil keeps it clean. A simple, harmless, economical method of obtaining maximum performance and longer life.

Since every lost day of service means decreased income, preservation of motors is vital. LOOSITE and SILOO can be used safely and effectively with *any* type oil and filter.

For sale by leading jobbers everywhere, and the White Motor Company branches and distributors

PETROLEUM SOLVENTS CORPORATION
331 Madison Ave., New York 17, N. Y.
If you heat with oil ask about SILOO fuel oil tank solvent.

WHO SAID IT?



"AS YOU GO VOCIFEROUSLY FORTH, DRAPED IN THE OUTER GARMENTS OF PATRIOTISM AND THE UNDERWEAR OF SELF-INTEREST, PLEASE REMEMBER THAT OUR TANKS AND TRUCKS AND JEEPS CANNOT BURN AS FUEL THE CROCODILE TEARS YOU SHED."

☐ HAROLD L. ICKES ☐ WINSTON CHURCHILL
☐ GEN. EISENHOWER ☐ JOSEPH B. EASTMAN

Answer on Page 182

COST OF DRIVER TRAINING PROGRAM

(CONTINUED FROM PAGE 156)

most of the time for driver training purposes only, then the cost of that vehicle plus the cost of insuring it would probably be added, making the total approximately $1,300 more—or $7,450 per year. It should be remembered, however, that these costs apply to a fleet of 1200 vehicles.

Exhaustive studies which our company has made of the uninsurable costs of over 1000 accidents such as last use of the vehicle, repair cost to the company vehicle, time lost in investigation, etc., averages $45 per accident.

Applying this figure to the 1800 accidents prevented, we find a monetary savings of $61,000 to the fleet owners involved compared with a cost to them of $7,450. (An 800 per cent return.)

Is it any wonder, then, that the cost of a driver training program should be looked upon as an investment rather than an expense?

The many advantages of driver training programs in fleets are not in the slightest dampened by any increase in the liability of the fleet operator for damage to persons or property—or by any increase in insurance costs for coverage against what liability exists. In other words, a tractor-semi or a straight job or a panel delivery is not exposed to any unusual liability claims from accidents that might occur while the vehicle is being operated for training purposes. If an accident should occur while a driver is being tested or trained behind the wheel, any personal injury or property damage claim brought against the assured would have the same status as if the accident had occurred while the vehicle was being used in the ordinary business of the assured. There is no restricted use endorsement in the standard fleet policy which prevents the use of the assured's vehicles from driver training purposes.

It might be argued that liability exposure is greater in the sense that accident probability is greater where new or untrained drivers are at the wheel, but the actual experience of fleets with driver training programs does not substantiate this claim.

Regarding insurance costs, there is no extra premium charge for cover-

(TURN TO NEXT PAGE, PLEASE)

IN WHICH STATE, THIS NOVEMBER, DID VOTERS VOTE ON A CONSTITUTIONAL AMENDMENT TO PROHIBIT THE USE OF REVENUES FROM GAS TAXES AND LICENSE FEES FOR ANY PURPOSE EXCEPT FOR HIGHWAYS AND SAFETY THEREON ?

☐ GEORGIA ☐ INDIANA
☐ PENNSYLVANIA ☐ WEST VIRGINIA

Answer on Page 184

OVERTIME

Do You Know Why—When—and How Much—EXACTLY?

● These are days of frequent Overtime—and necessary, too. But—look at the Servis Recorder chart above—note those "gaps" in the travel line, marked WASTE. Each one records a period of *idle time* during the day—the truck wasn't running then. Were these delays justified, unavoidable—or were they somebody's fault (not necessarily the driver's)? In either event, they may have lengthened the needed OVERTIME (bracketed above on the chart). Better get the *facts!*

Well, the first thing for you to do is to find out if your truck is losing valuable time now and then on its routes during the day. (Those idle moments at odd times sure do add up!)

And the only *accurate* way to keep tab on all those delays (even down to 10-minute periods)—and to record Overtime, too—is to attach a little SERVIS RECORDER; then the truck *is its own Time-Keeper!*

Write us. The Service Recorder Company, 1375 Euclid Avenue, Cleveland 15, Ohio.

The Servis Recorder

Shows Busy and Idle Time... All Day

COST OF DRIVER TRAINING PROGRAM

(CONTINUED FROM PAGE 159)

age of an assured vehicle that is used for driver training purposes. Any vehicles in the fleet might be used depending on which one would be available at the time at the terminal. The standard fleet coverages apply to vehicles used in driver training just as though they were used in the ordinary business of the assured. As a matter of fact, such use is interpreted as part of the assured's "Business Use."

Thus we see that driver training programs do not increase the fleet operator's liability exposure or his insurance costs. Conversely, however, they may save him a great deal in both liability exposure and insurance costs by bringing about a reduction in the total accident experience of the fleet. In unsupervised states, fleets are experienced-rated, which means simply their premium rates for the coming year are based upon their losses over the last two years and nine months of coverage. The standard manual rate for the type of operation and classification is modified by either a charge of a credit depending on how much losses were above or below normal expectancy during the past two years and nine months.

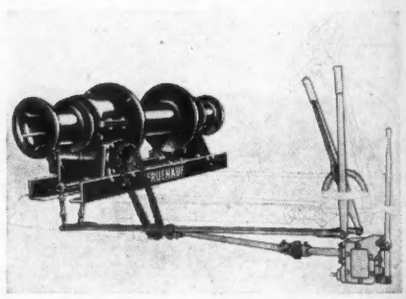
END

(Please resume your reading on P. 58)

General Tire Buys Pennsylvania Rubber Co.

The Pennsylvania Rubber Co. has been purchased by the General Tire & Rubber Co. Howard W. Jordan, president of the Pennsylvania Rubber Co., will retain his position under the new corporate setup being planned for General Tire's new subsidiary. The Pennsylvania lines of tires will be retained, as will the executive force and the dealer organization, according to William O'Neil, president of General Tire.

The Pennsylvania Rubber Co., seventh in sales volume in the tire industry, is located at Jeannette, Pa., a suburb of Pittsburgh.

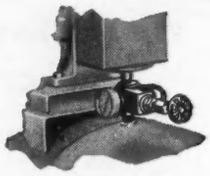


Greater safety and ease in loading heavy machinery and materials has been achieved through the latest type power winch, now available from the Fruehauf Trailer Co. The winch is a compact unit which can be easily mounted on trucks and trailers. Three sizes are available with 12,000, 18,000 and 25,000-lb. capacities. Power is provided by the truck engine. Three convenient levers are located within the cab for operation of the winch. Each model is equipped with an oil-cooled, fully adjustable automatic brake, which makes it possible to operate the winch with safety. A steel jaw clutch gives quick, positive action under all load stresses. The unit is built with a cast integral worm gear which insures longer life and provides still greater safety due to the fact that there are no bolts to shear. This device can be installed at any Fruehauf branch

By comparison - You'll buy PAR

PAR by Lynch

For increased cooling efficiency, the Par balanced, Fan-spoked Flywheel circulates air over entire compressor, inter- and after-coolers . . . has tapered hole for easy disassembly and reassembly.



The Pressure Switch, Pressure Gauge, Globe Valve, and tank outlet, all form an integral part of the bronze casting discharge manifold. A streamlined unit for efficient operation.

Par is a leader in the development and use of outstanding efficiency features. That's why we ask you to COMPARE . . . By Comparison—You'll Buy Par! See your Par Jobber or write for illustrated catalog A-46.

The Par drop-forged steel crankshaft is ground and polished on all bearing surfaces. Flywheel end is taper ground to fit tapered hole in Flywheel—easily disassembled and reassembled.

PAR Lynch DIVISION MANUFACTURING CORPORATION
DEFIANCE, OHIO, U. S. A.

TRUCK OF THE FUTURE

(CONTINUED FROM PAGE 94)

Truck Designs to Come

THERE still continues to be much speculation by the truck using industry as to what will be incorporated in the design and construction of the really and truly postwar truck. Those vehicles coming off assembly lines at present still continue, and probably will for another year or more, to have pretty much the same appearance, and to embody pretty much the same general specifications and design characteristics as those of prewar vintage.

Many makes and models no doubt do already incorporate certain improvements and refinements resulting from wartime experience. The real postwar truck, however, will not likely be introduced until after immediate production requirements have eased up; plant, machine tool and manufacturing facilities have been completely rehabilitated and new vehicle designs have been thoroughly tested under actual use conditions.

In order to keep the maker's name before the truck buying public, numerous articles have been written that intimate great things to come in truck design. Advertisements, trade journals and newspapers have carried the artist's conception of what postwar trucks will look like. Some of these have real merit while others are but "flights of fancy." It is at least somewhat doubtful whether even the next several years will produce the vehicle powered by energy from the split atom, steered by radio beam and braked by mental telepathy.

Just what the basically new trucks will look like and what will be incorporated in their designs, no one knows at this time. Many new and highly meritorious features will make their appearance, and it is probably safe to predict in a general way that vehicles will be lighter but stronger and more durable, thus increasing payload for a given gross weight, also lowering operation cost and minimizing time formerly lost during repair. Designed to provide better load distribution, through improved

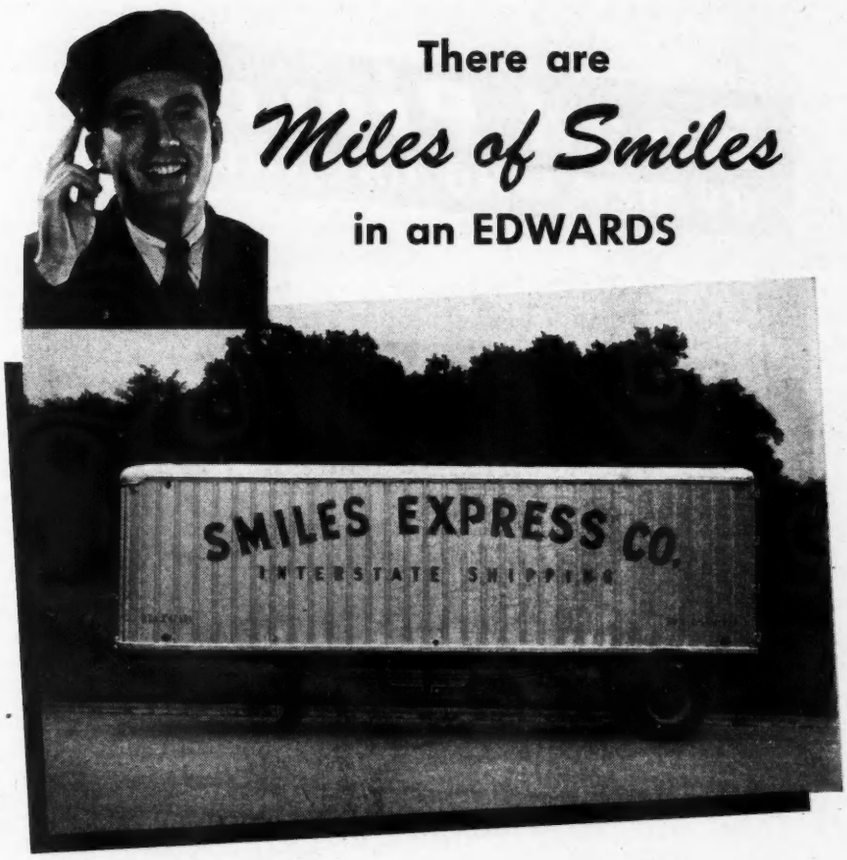
(TURN TO NEXT PAGE, PLEASE)

CAN YOU NAME THE AUTHOR OF THESE WORDS... "THE LAST FEW YEARS HAVE SEEN THE RISE OF VIRTUAL TRADE BARRIERS ALONG STATE LINES -- DAMAGING RESTRICTIONS THAT HAVE HINDERED THE FREE FLOW OF COMMERCE AMONG THE SEVERAL STATES ... BUSINESS, AGRICULTURE AND LABOR ALL HAVE SUFFERED."

☐ FRANKLIN D. ROOSEVELT
☐ THOMAS E. DEWEY ☐ HARRY S. TRUMAN
☐ GEORGE WASHINGTON

Answer on Page 186

There are
Miles of Smiles
in an EDWARDS



● Miles of satisfaction are in store for you in your new Edwards. Expert craftsmen are building these famous trailers to Edward's tried and proved engineering principles — principles that have proved Edward's ability to take it throughout the transportation crisis. Truckers everywhere ... and the Army ... agree that Edwards means long life and low maintenance costs. For prices and further details call your Edwards dealer today or write the factory direct.

EDWARDS IRON WORKS, INC., SOUTH BEND, INDIANA

EDWARDS SEMI-TRAILERS

TRUCK OF THE FUTURE

(CONTINUED FROM PAGE 163)

relation of loading space to axle location, payload thus will be further increased to take the best advantage of state restrictions on sizes and weights; better balance and driver handling will be evidenced, and rubber will be conserved through equalized tire loads and tire wear. Higher compression and otherwise improved engines, permitting advantage to be taken of the higher anti-knock qualities of the new fuels, will provide a greater ratio of power to gross vehicle weight, resulting not only in greatly improved performance, but in the further economy of lessened labor for—and wear of—the power plant, and the maintenance expense.

All these improvements and many more, such as automatic transmissions, wide base rims, and a simplified and more uniformly progressive range of tire capacities are to be expected.

Primarily, the great majority of near future improvements will simply involve refinements of existing designs; however, there undoubtedly will be many new and heretofore unused features introduced as well, later on. Manufacturers are not yet willing to divulge the details pertaining to their new developments, many of which are yet in the experimental or testing stage. There are, however, some new features, systems and principles, not heretofore utilized to any great extent in motor transport, that sooner or later, most surely will enter the picture. Let's take a casual glance at some of the features that might be in the mill and which if not, certainly deserve at least some reflection by the vehicle designer.

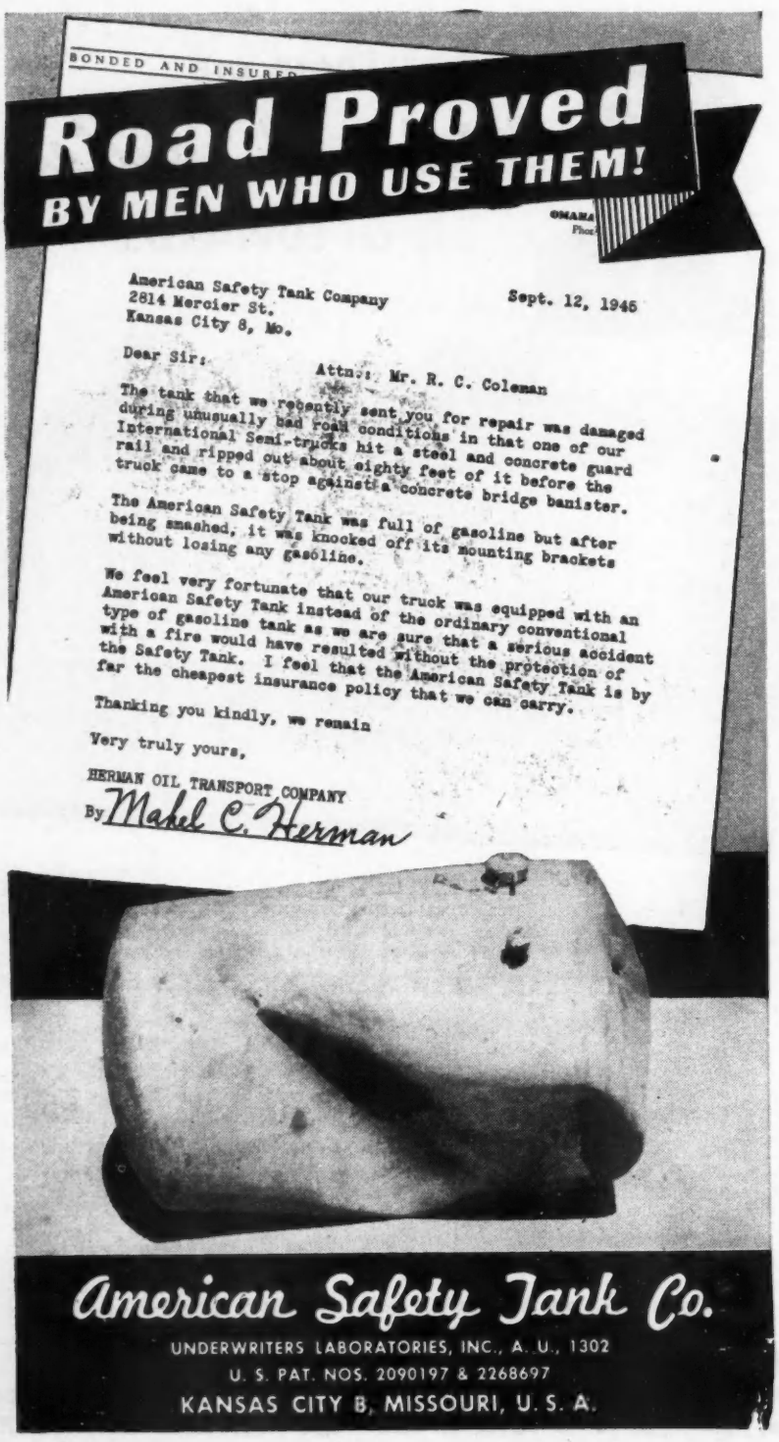
Mechanical Improvements

THE cooling system is a good example of something that can stand improvement. The cooling fan in back of the radiator is a constant expense. The output of the generator is controlled through the use of more or less expensive voltage and current regulators and justifiably so. Why then don't we control the cooling system in keeping with its actual requirement? The demand upon the fan also represents a variable as great or even greater than that of the generator and the potential saving in power is far greater. The air delivery of the present fan is determined by its maximum requirement. In order to avoid over-cooling and its attendant ill effects, not by the direct approach of output control, but by dissipation of the effect of the surplus cooling, additional expense is added through the provision of thermostats and winterfronts, etc.

There are devices, however, that can be incorporated as a basic part of the original design, such as the variable pitch fan and the magnetic or eddy current fan drive, that very likely in the future will provide means of controlling the fan output and of avoiding the waste of horsepower and fuel required to drive the fan when it is not needed.

One of the lessons the war taught was the necessity of conserving water, particularly in desert operation, and anti-freeze solutions in sub-zero operation. As a result, the waning

(TURN TO PAGE 166, PLEASE)


BONDED AND INSURED
Road Proved
BY MEN WHO USE THEM!
American Safety Tank Company
2814 Mercier St.
Kansas City 8, Mo.
Sept. 12, 1945
Dear Sir:
Attn.: Mr. R. C. Coleman
The tank that we recently sent you for repair was damaged during unusually bad road conditions in that one of our International Semi-trucks hit a steel and concrete guard rail and ripped out about eighty feet of it before the truck came to a stop against a concrete bridge banister.
The American Safety Tank was full of gasoline but after being smashed, it was knocked off its mounting brackets without losing any gasoline.
We feel very fortunate that our truck was equipped with an American Safety Tank instead of the ordinary conventional type of gasoline tank as we are sure that a serious accident with a fire would have resulted without the protection of the Safety Tank. I feel that the American Safety Tank is by far the cheapest insurance policy that we can carry.
Thanking you kindly, we remain
Very truly yours,
HERMAN OIL TRANSPORT COMPANY
By Mabel C. Herman
American Safety Tank Co.
UNDERWRITERS LABORATORIES, INC., A. U., 1302
U. S. PAT. NOS. 2090197 & 2268697
KANSAS CITY 8, MISSOURI, U. S. A.

"Say!" THE MAINTENANCE BOSS SHOUTED: "Let's see that HY-POWER lamp again!"

1. "Look," he growled, "I buy PROTECTO truck mirrors. OK, I like 'em." "But," he added slyly, "*that* doesn't sell me on HY-POWER lamps."

"That's right," I agreed, "but you'll sure be sold on them if you take a good look at that HY-POWER lens!"

"Looks just like any other lens," he snorted. "What's the difference?"

2. "Plenty," I replied. "Listen! Every HY-POWER clearance and marker lamp has a patented lens that does the job of *two* ordinary lenses.

"One part of the HY-POWER lens consists of concentric rings that bullet the light for long distance lighting. The other part, the radial flutes, directs the light to the side."

3. "H'mm," he muttered. "I see what you mean. That makes this lamp perfect for either clearance or marker purposes. Incidently, how much light does this lens absorb?"

"Amazingly little," I assured him. "That's one reason why the HY-POWER patented lens is famous for providing greater visibility than ordinary lenses of larger dimensions."

4. "Fine," he said, "but will these lamps give good service?" "*The best,*" I exclaimed. "They're extra sturdy and compact and you get 3-way protection against moisture, dust and weathering deterioration. *First,* HY-POWER lamps are finished both inside and out. *Second,* there's a patented sealer ring on each lens that cuts into the gasket and seals the lamp against moisture and dust. *Third,* there's—"

5. "Whoa," he laughed, "you're going too fast. Now what's number three?" "That's another exclusive feature," I replied. "Plus the sealer ring, each HY-POWER lamp has a special gasket under the lens which prevents moisture entering the lamp housing, and —"

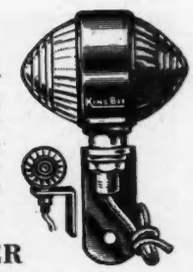
"Say!" he shouted. "Let's see that HY-POWER lamp again! Those features are too good to miss!"

<STYLE No. 5225

For use as clearance or marker lamp on sides or back of trucks and busses. King Bee molded rubber adapters permit mounting on rounded corners.

STYLE No. 64>

Two-way clearance and marker lamp. Internal rubberized separating band provides positive protection against dust and water penetration.



Ask Your Jobber's Salesman to Show You the Complete Line of HY-POWER *Truck and Bus Lamps. Remember—There's a* HY-POWER *Lamp to Meet Your Most Exacting Requirement!*

FAMOUS KING BEE PRODUCTS

PROTECTO Rubber Rim Truck Mirrors — — — HY-POWER Truck Lamps
PATENTED PATENTED

Indestructible FOTO-RAY Reflectors
PATENTED

Manufactured by AMERICAN AUTOMATIC DEVICES CO.
502 S. Throop Street, Chicago 7, Illinois

TRUCK OF THE FUTURE

(CONTINUED FROM PAGE 164)

interest in the surge tank and the pressure cooling system has been actively revived. Generally speaking, in the past, almost everyone considered the necessary devices to be in the category of "gadget attachments"; however, the development of the surge tank, built into the radiator top tank in conjunction with a sealed cooling system, has definitely removed this feature from that category. It is hardly necessary to mention the difficulty involved in getting that last 10 deg. of cooling, through greater fan output and core capacity, in order to accommodate flash temperatures above the boiling point. The cost of supporting that extra 10 deg. during the far greater portion of the operating time, when it is not needed, is simple outright waste. It has been found that a sealed cooling system with but approximately 4 p.s.i. pressure will do the trick.

There are unquestionably many vehicle designers who would welcome the opportunity of incorporating fan control, surge tanks and pressure cooling into current basic design if cost would permit. Many headaches could be avoided from trying to baffle the water in an effort to prevent loss of coolant during sudden brake applications or when making sharp turns.

There are many operators of vehicles who will probably demand this improvement and feel that the added initial cost is fully justified.

It might be of interest to note that tire manufacturers tell us that although not yet fully developed, we can expect in the "not too distant future," tires that will give 100,000 miles of service.

A central tire inflation system, involving special air tight wheel hub mechanisms in the form of rotating pressure joints, was developed for the Army Duck vehicle. This system permits the driver either to inflate or deflate any or all tires while the vehicle is either stationary or traveling at full speed, either on land or in the water. It would probably be a little expensive for use on a commercial vehicle, but in time may come. This brings up the thought of "one shot" or central chassis lubrication systems.

Rubber companies have been doing experimental work with an air clutch, consisting of a rubber bellows enclosed in a split metal housing. Air pressure expands the bellows within the housing providing a smooth engagement, a tight joint and a positive drive.

Both the "gadgetary" and the built

(TURN TO PAGE 170, PLEASE)

To Keep 'Em Rolling Clean Your Trucks

The JENNY Steam-Spray Way

Pay mileage stops when trucks go into the garage for repairs. The faster you get 'em out and rolling again the more money you save—and earn. Hypressure JENNY Steam Cleaning before repairs saves up to 40% of mechanics' time usually lost wiping dirt and grease from tools and equipment. Periodic JENNY Steam-Spray cleaning often reveals broken or defective parts in time to permit repairs before costly road failures occur . . . rids chassis of accumulated road dirt that often adds as much as 400 pounds to the load . . . reduces fire hazards. Besides, JENNY speeds garage operation by cleaning machinery, tools, floors, pits, runways, walls, windows, skylights, etc., 8 to 10 times faster than by hand methods.

Hundreds of fleet owners are helping their trucks to keep rolling by keeping them clean the JENNY Steam-Spray Way. JENNY can add pay miles to your fleet too.

Write today for complete information and prices.

HYPRESSURE JENNY DIVISION OF

HOMESTEAD VALVE MFG. CO.

MAKERS OF FINE PERFORMANCE VALVES FOR 50 Years 1892 1942

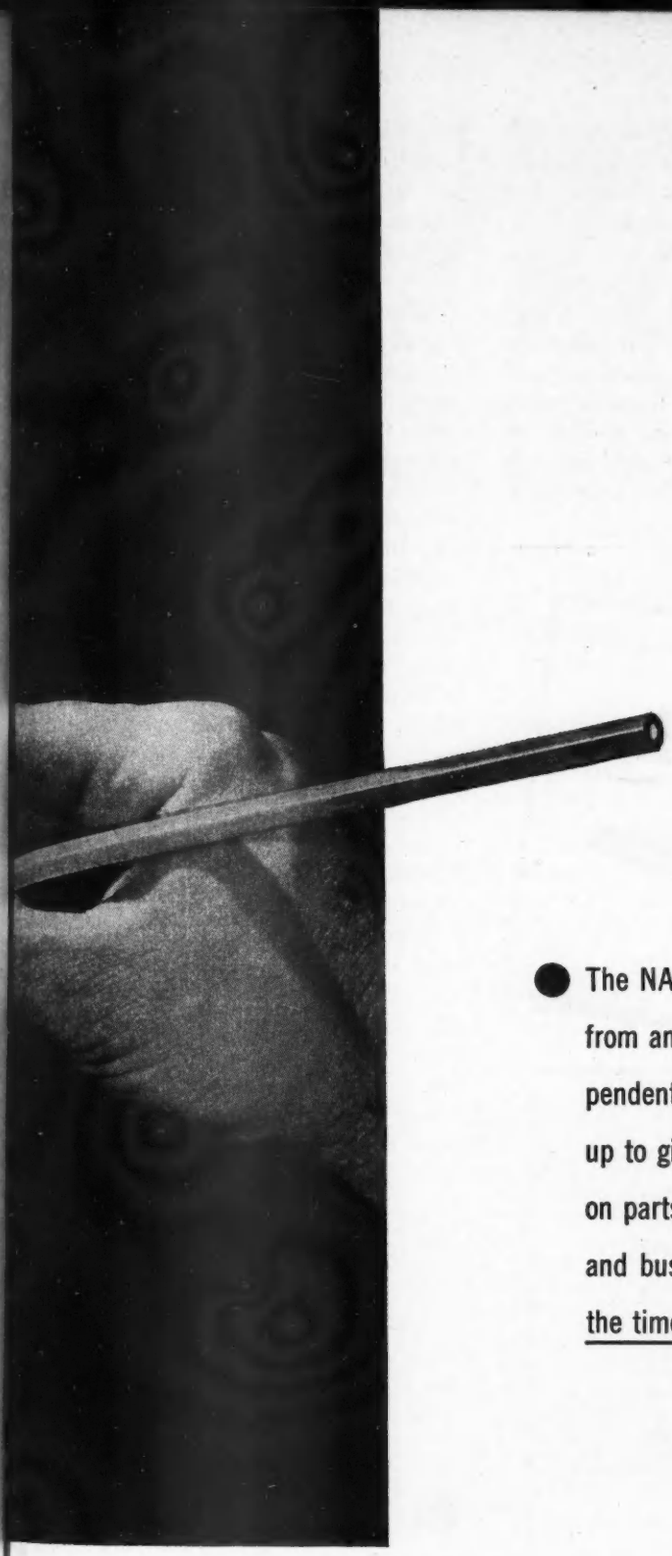
P. O. BOX 90 • • • CORAOPOLIS • • • PENNSYLVANIA

WHAT IS IT?

ANSWER

(To Question on Page 144)

The shape of a standard road sign on major highways will always give an inkling of the meaning, even if the wording is not legible. The round sign in the illustration would indicate a railroad crossing ahead.



● The NAPA Jobber in your community is different from any other . . . As part of the largest independent organization in the parts industry—he is set up to give you the fastest, most complete service—on parts of genuine quality—for cars, trucks, tractors and buses of all makes. He's working with you—all the time—on every job that comes into your shop.

NAPA *is the largest Independent Parts Organization in the Industry!*

N·A·P·A
National Automotive Parts Association
Assurance of Quality

American Brakeblok — BRAKE LINING · CLUTCH FACINGS · FAN BELTS · RADIATOR HOSE
Allied WISCONSIN — PISTONS · SLEEVES
Spicer — UNIVERSAL JOINTS
MONMOUTH PRODUCTS — ENGINE BEARINGS · CLUTCH PARTS · BOLTS AND BUSHINGS
TRICO — VACUUM OPERATED SAFETY PRODUCTS
Allied GRAPHO — WATER PUMPS · PARTS · PACKING
BROWN LIPE — GEAR BOXES
BALKAMP — PARTS FOR FORD · CHEVROLET · PLYMOUTH
Buffalo — MUFFLERS
MicroTest — GEARS · AXLE SHAFTS
Allied A.P.C. — VALVES
STANDARD — GREASE RETAINERS
DETROIT — UNIVERSAL JOINTS
DITTMER — TRANSMISSION GEARS
Allied RAYMOND — VALVE SPRINGS
RARITAN — ROLLER BEARINGS
New Britain — HAND TOOLS
ECHLIN — IGNITION PARTS
Allied CELORON — TIMING GEARS
PRECISION — PISTON PINS
DUCKWORTH — TIMING CHAINS
PURITAN — BRAKE FLUID
MARTIN-SENOUR — AUTOMOTIVE FINISHES
Belden — WIRE AND CABLE
DOUBLE DIAMOND — EXHAUST GEARS
FEDERAL — BALL BEARINGS
UNITED — PARTS FOR HYDRAULIC BRAKES · FUEL PUMPS

TRUCK OF THE FUTURE

(CONTINUED FROM PAGE 166)

in types of air conditioning are promised for the near future by passenger car manufacturers. How long will it be before truck cabs will dispense with the conventional hot water heater unit that merely stirs up the old stale air? Heated, fresh air, forced through the cowl ventilator, supplemented with fans and even some refrigeration for summer, can slightly pressurize the cab and eliminate the well known objections. There's nothing particularly new about it except the demand.

New Materials on Way

GREAT progress was made in connection with the war effort, in the development of plastics, not only for bomber noses but for many other engineering applications as well. It would seem that the cab designer could easily afford the time to at least look into the idea of a one-piece cab nose made from a sheet of transparent plastic if for no other reason than the elimination of the usual corner post blind spots and because of its shatterless characteristics.

Aluminum alloys have been used for years in radiator shells, bell housings, engine oil pans, crankcases, pistons, cylinder sleeve housings and some transmission cases to say nothing of bodies. It is only very recently, however, that serious consideration has been given to the use of aluminum alloys in wheels and especially in axle housings. It has been reported that excellent physical characteristics are attainable and quite satisfactory results have been achieved from experimental test work. Undoubtedly, a very appreciable reduction in vehicle weight will result from the more generous use of aluminum, magnesium and other light materials, made possible by their greatly reduced costs since the war.

Due to the scarcity of critical materials during the war, and the necessity for substitution of what were felt at one time to be inferior materials, many of those substitutes have had their physical characteristics developed to the point where they are now considered to be superior to those for which they were substituted.

Chassis springs certainly deserve a lot of looking into. Over many years the multi-leaf, semi-elliptical type of chassis spring has remained fundamentally unchanged. True, some improvements have been made, both in design and in fabrication, consisting

(TURN TO PAGE 174, PLEASE)

Improved materials and the experience gained in making the goods of war assure you better U. S. Axles in the days of peace ahead. The U. S. AXLE CO., Inc., POTTSTOWN, PA.

US AXLES

WHAT'S NEW?

ANSWER

(To Question on Page 146)

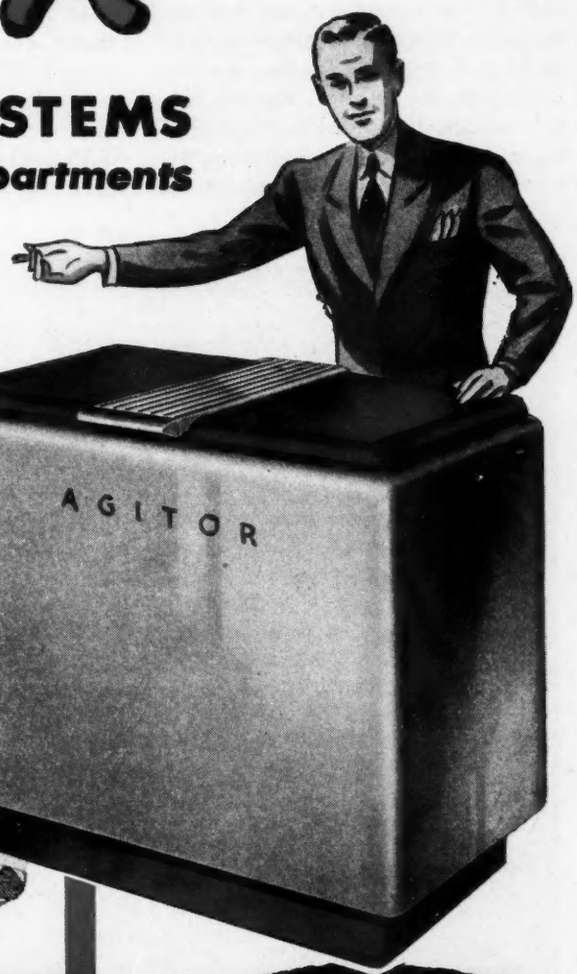
The Standard Oil Development Co. has developed a high-octane gasoline that will actually extinguish a flaming match dropped into it. Greatest use for this new safety fuel, though, probably will not be for trucks and autos but for airplanes, where the fire hazard is so much greater.

GRAY-MILLS

AGITOR

PARTS CLEANING SYSTEMS

for Modern, Efficient Service Departments



1 MODEL H-71

General utility unit for cleaning gears, crankcases, cylinder heads, starting motors, generators, etc. 38″ L. 21″ W. 34½″ H. Streamlined design, reinforced construction. Automatic safety device on cover. Portable—concealed revolving casters (Extra). Illustrations below show 4-way action of Model H-71.

1. Pump Agitation for soak cleaning—using entire tank.
2. Fountain-Surge Agitation for "basket" cleaning.
3. Hi-volume Hose-Cleaning with pumping system.
4 Plus—Air-Agitation for soak-cleaning—using entire tank.
4-Way Action at the twist of the wrist

3 MODEL L-73

For cleaning carburetors*, fuel pumps*, air cleaners and other small parts. 21″ W. 21″ L. 34½″ H. Used as auxilliary unit of Model H-71 or J-75. Equipped for air-agitation. ****Speed-Agitene **removes gums and heavy carbon deposits quickly.**

cleaning systems and AGITENE solvents

1942 Ridge Avenue, Evanston, Illinois

TRUCK OF THE FUTURE

(CONTINUED FROM PAGE 170)

principally of the parabolic leaf section with less weight than the rectangular; interleaf lubrication to provide a more nearly constant rate and to eliminate squeaks; shot blasting or peening to improve fatigue, life, etc.

Despite these very definite improvements, the problem of producing a really good ride, especially for the heavier vehicles, throughout the full load range, has been more or less of a compromise and has not been fully solved. The independent, coil-spring type of suspension, common to most passenger cars, does not offer a practical solution to the variable load problems encountered in heavy duty motor truck service, although there have been some types of two stage helical spring suspensions, rubber bushed, that seem to function quite well in trailer use. Two stage, or more, or better yet, the infinitely progressive type of leaf spring may or may not be the answer. Rubber companies are experimenting with air pressure bellows types. The torsion types, both the steel rod and the bonded rubber types, offer interesting possibilities for further investigation.

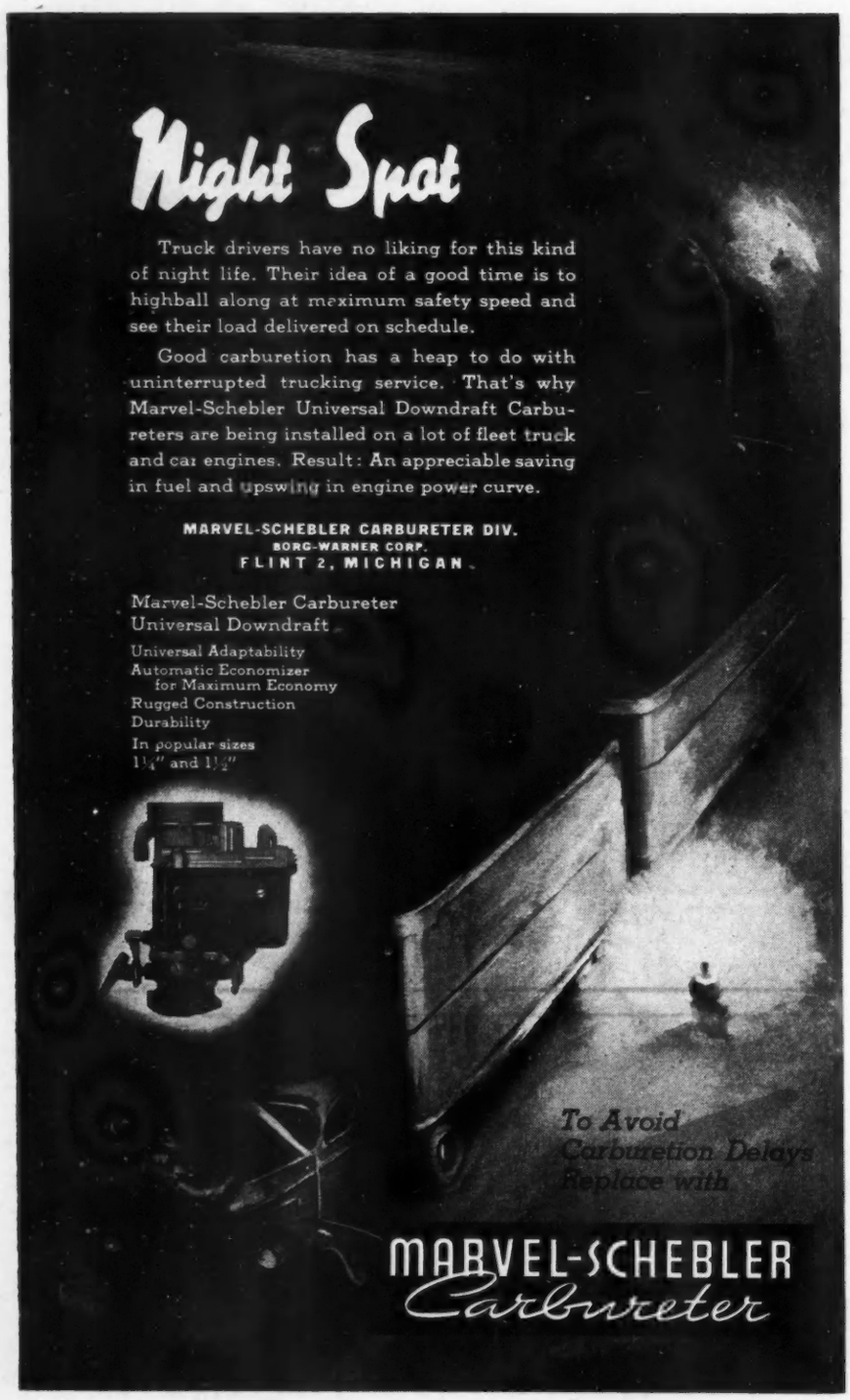
Engine Improvements Expected

DIESEL power plants in trucks are of course here to stay. Probably the biggest problem for the diesel designer at the present is attainment of an appreciable weight reduction. From my own observation the big problem connected with diesel use is not so much one of design and of "which diesel to use," but more of "when or if and where to use a diesel." The many advantages and disadvantages of the diesel quite definitely establish its own distinct field of usefulness.

Aviation experience during the war has provided a very definite index to the design of engine details such as valves and bearings, etc., that cannot be ignored.

Competition with the railroads' diesel-powered high speed freight engines and the new steam turbine locomotives demands that long distance truck and trailer operations keep pace with the higher average speeds that result from the use of such modern railway power equipment. Bigger truck engines have been the trend but for each class of G.T.W. there is an economic ceiling to the extent that weight can be add-

(TURN TO PAGE 177, PLEASE)


Night Spot
Truck drivers have no liking for this kind of night life. Their idea of a good time is to highball along at maximum safety speed and see their load delivered on schedule.
Good carburetion has a heap to do with uninterrupted trucking service. That's why Marvel-Schebler Universal Downdraft Carbureters are being installed on a lot of fleet truck and car engines. Result: An appreciable saving in fuel and upswing in engine power curve.
MARVEL-SCHEBLER CARBURETER DIV.
BORG-WARNER CORP.
FLINT 2, MICHIGAN
Marvel-Schebler Carbureter
Universal Downdraft
Universal Adaptability
Automatic Economizer for Maximum Economy
Rugged Construction
Durability
In popular sizes 1¼" and 1½"
To Avoid Carburetion Delays Replace with
MARVEL-SCHEBLER Carbureter

WHO DID IT?

ANSWER

(To Question on Page 150)

Clessie Cummins took a diesel-engined truck with a cot in the rear to the Indianapolis Speedway. He and a relief driver circled the track day and night for 14 days, establishing a non-stop record of 14,000 miles. Cummins refueled only once, and he didn't even stop for that. He got the fuel from an oil truck that traveled alongside.

TRUCK OF THE FUTURE

(CONTINUED FROM PAGE 174)

ed in order to obtain the increase in piston displacement. A 75,000-lb. gross combination weight might economically support the added parasitic weight of a 200-250 hp. engine weighing around 3000 lb., plus the added weight burden of the matching torque transmitting members—but it is doubtful if the loss of net payload could be tolerated from a 50,000-lb. combination. The answer may be found when the advancement in supercharge design and application resulting from war experience is applied to gas powered truck engines in the classes below 500-cu. in. displacement.

It is altogether probable that future design also will give more deserved consideration to the proper relation of gear reductions to engine output characteristics as shown on power curves, so as to attain more nearly uniform progressions in tractive ability and/or road speeds.

Possibly after another 10 or 20 years, after we have become accustomed to splitting atoms for power, we can look back and realize that much of our earlier reasoning constituted hair-splitting.

Automatic transmissions, fluid drives and torque converters will find a wide range of usefulness and will most surely be utilized in basic designs, all the way through from the door to door delivery vehicle, also to some extent in the highway transport, but especially in the heavy-heavy, specialized off-highway type of vehicle.

Power steering both air and hydraulic is bound to come for the heavy duty tractor truck and the off-highway vehicle.

In the past air actuation has had practically a monopoly on the full powered braking system; however, wartime development of vacuum power has resulted in improvements in controlability that will permit full powered applications of vacuum to heavy duty hydraulic brakes.

Hydraulic brakes of the forward acting two shoe type are not even now uncommon and the advantages of equalizing and self energizing the output of both shoes in the direction of vehicle travel, needs only to be mentioned and assuredly offers an opportunity to speculate on the possibility of an equivalent improvement in air brake design.

There are numerous operations where the down grade speed is absurdly limited by braking ability even with water cooled drums as used in heavy logging in the northwest. How often has this limitation been removed entirely under favorable road conditions, simply by shifting into the "wind-gear" and letting nature take its course?

Between these extreme limitations is a field of development that will bear watching—the brake retarder of both the hydraulic and the eddy current types.

Many highly specialized truck and tractor truck models for various vocational uses will make their debuts to the market. These will have been specifically designed for given end uses and will not simply be the result of shortened up wheelbases or otherwise cobbled up conversions from standard stock model vehicles.

Sooner or later you will surely see

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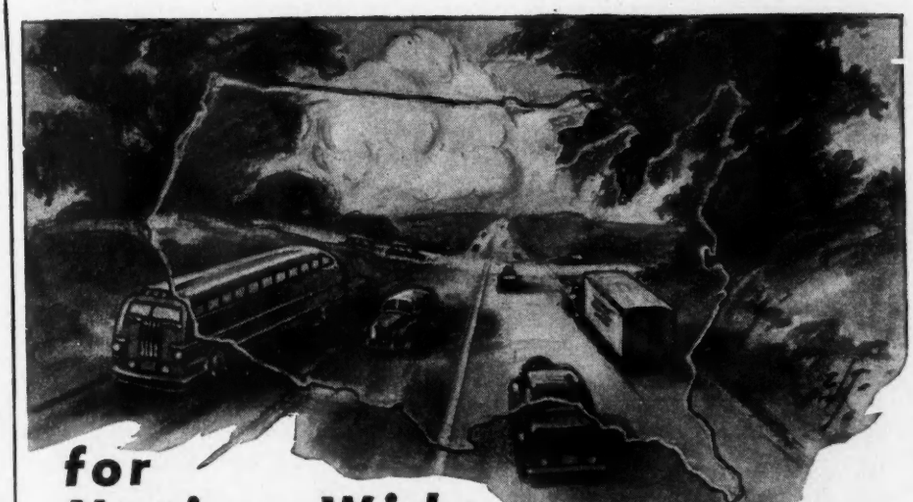


for Nation-Wide Driving Safety

Teleoptic

DIRECTIONAL SIGNALS

Give the *utmost* in signal protection. Signals show clearly, unmistakably at 125 feet, day or night. CLEAR VISIBILITY AT ALL ANGLES.

Signals you can *depend on* for the life of your car! Ruggedly built to withstand all services—all weathers. Extra heavy glass lenses, finely ground. Integral construction. Pedestals that screw on. Rust-Proof—Dust-Proof. Vibration-Proof. Here is *priceless* protection —as against price!

APPROVAL BY STATES REQUIRING DIRECTIONAL LIGHTS: Conclusive evidence of Teleoptic's *better* service under most critical inspection.

Send for New Catalog Sheet. Full details with illustrations.

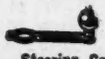
Now also manufacturers of the Famous Fog King and Road King fog and driving lights —

In the Air it's Sel-air

On the Highway it's Teleoptic

Teleoptic Finger-Flip Control Switch on gearshift lever.

Inst. Panel Control Switch, with or without pilot light.



Steering Column Control Switch.

THE TELEOPTIC CO.

1245 MOUND AVENUE RACINE, WISCONSIN

TRUCK OF THE FUTURE

(CONTINUED FROM PAGE 177)

two-way radio; polarized headlighting; ball loaded bushings, either rectangular or round, for reciprocating motion; speedometers that tell the driver when to shift gears; an S.A.E. standard practice safety fuel supply tank that can not explode; semi-trailers with genuinely round noses and all that implies; adjustable fifth wheels to enable instantaneous shifting of the load between the tractor front and rear axles, etc.; these are but a few of the many other new developments expected to come.

END

(Please resume your reading on P. 96)

See Oversupply of Mechanics

A sharp rise in employment of automobile mechanics is in prospect now that the war is over, but, taking the country as a whole, the number of men seeking work in the occupation probably will exceed the number of available jobs. This is chief conclusion of study by Bureau of Labor Statistics, U. S. Department of Labor prepared for use in vocational counseling of veterans and young people in schools.

New Instrument Televises Engine Ignition Troubles

An apparatus which televises the location and nature of engine ignition faults without direct access to the engine has been developed by D. Napier & Son and English Electric Co. of Great Britain. The ignition performance is thrown pictorially on a screen while the engine is running.

The picture consists of a row of peaked figures, one for each spark plug, arranged in the firing order of the engine. Perfect ignition gives a steady row of identical electrical figures, but any fault anywhere in the ignition system alters the shape of the figures in a characteristic manner. A faulty plug, for example, affects the corresponding figure and can be identified in its position in the row, while a defect in the magneto or the distributor alters the shape of the whole row of figures. Intermittent defects cause the figures affected to flicker in step with the defect.

In a faulty plug, the shape of the figure is suggestive of the defect itself. An excessive spark gap gives a high figure, and a short-circuited gap gives a low figure. An occasional miss gives a corresponding flickering of the figure.

The whole process of checking the ignition system is said to take only a few minutes, including the time necessary to turn on the selector switch on the instrument and glance at the line of figures. The instrument is about the same size as a small typewriter and is arranged to take its power from either 220 volts a.c. mains, or from a six, 12, or 24-volt battery.

WHICH IS IT?

ANSWER

(To Question on Page 152)

Briggs Mfg. Co., who have been in the steel plumbing ware field since the early thirties.

KEY OR SEAL TYPE

RIGHT YOU ARE, Mr. Fleet Owner, —those new trucks you buy should be equipped with Hoof Governors from the start if you want long life and trouble-free service from them. Hoof Governors are the smartest truck insurance you can buy, for they result in 11 different savings.

Fleet owners learned the lesson of conserving critical equipment during war time, and Hoof Governors played an important part in seeing that equipment through the emergency. That conservation is just as important now—for it means SAVINGS in a big way.

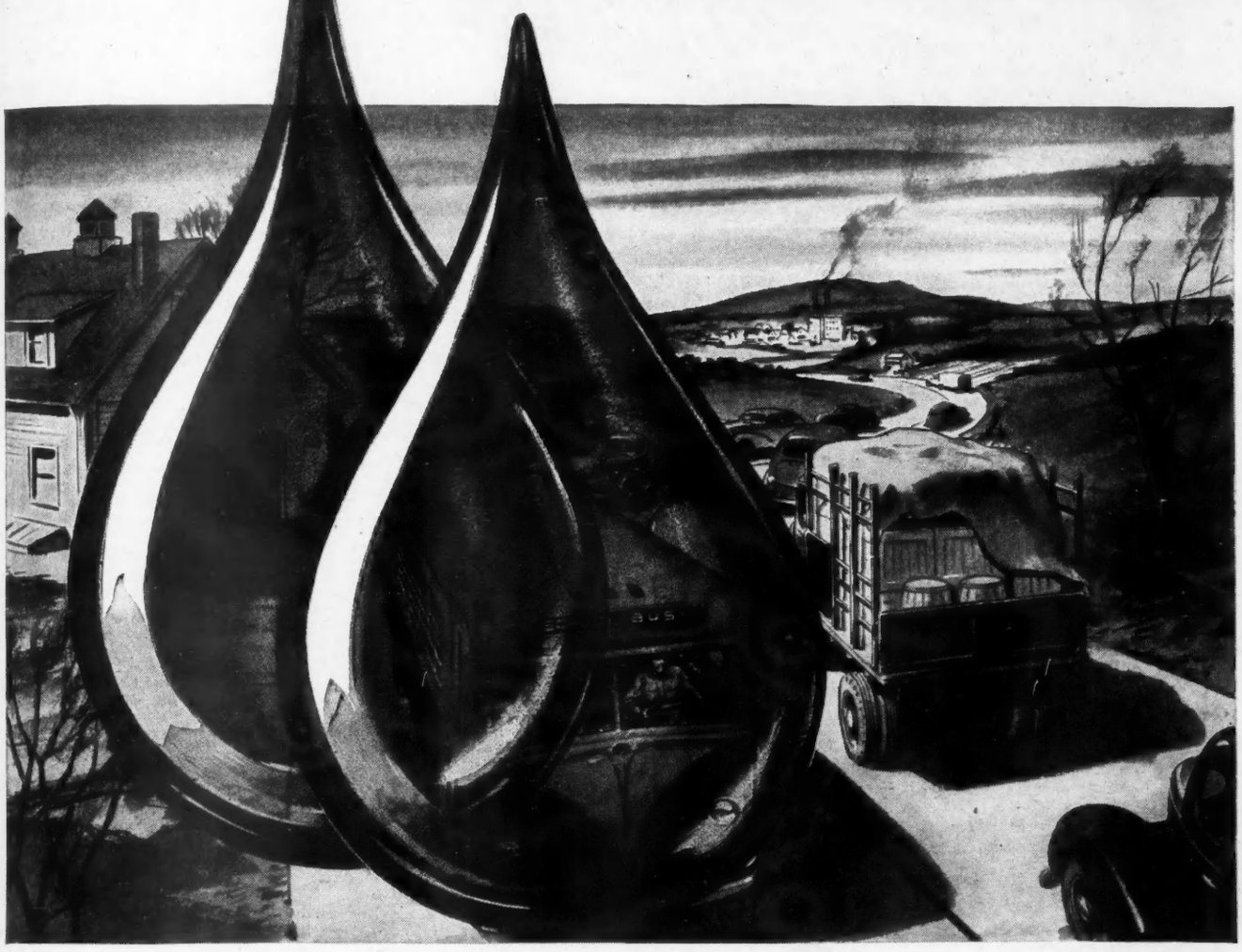
Get the facts today! Write for your copy of the new Governor Manual "Everything Under Control."

HOOF PRODUCTS COMPANY
6543 South Laramie Ave., Chicago 38, Ill.

GOVERNORS SET THE PACE

No doubt about it — the economical oil now is

DOUBLE-DUTY OIL!



IF there ever was a time to save money in buying motor oil, it is now. But you can't do it by pinching pennies on oil. You do it by saving *dollars* in your equipment life and servicing costs.

And the best way to do that kind of important saving is to buy and use Quaker State HD Oil regularly.

No doubt about it — the economical oil today is Quaker State HD Oil because it is a real double-duty oil. 1st, it *lubricates*. 2nd, it *cleans*.

That's a combination you want — an oil that not only lubricates better and longer, but keeps your engines cleaner — more free from trouble-making carbon, sludge, dirt, and sticky "varnish." A special detergent in Quaker State HD Oil does the trick.

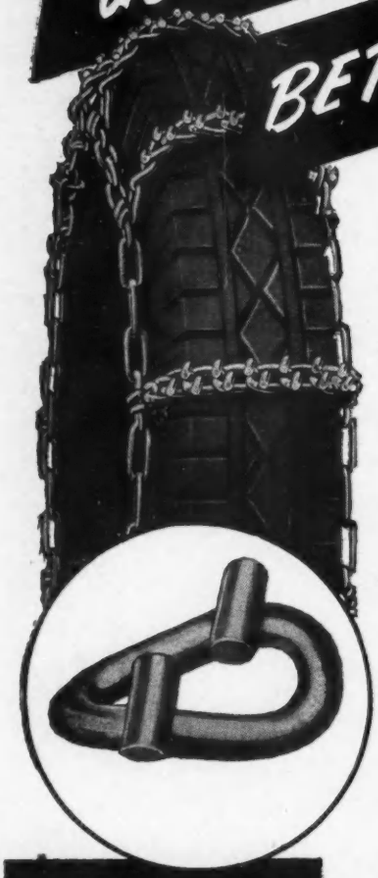
Start using this money-saving, engine-saving oil now. Get Quaker State HD Oil into your crank cases and check the savings.

QUAKER STATE
HD OIL
AND QUAKER STATE SUPERFINE LUBRICANTS

Quaker State HD Oil for your trucks, buses and tractors
Quaker State Motor Oil for your passenger cars

QUAKER STATE OIL REFINING CORPORATION · OIL CITY, PENNSYLVANIA

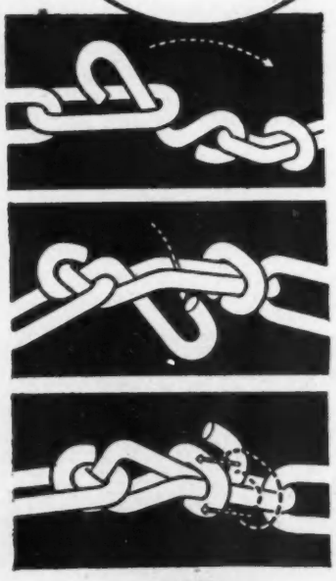
This Year USE McKAY'S BETTER 6 WAYS



1 McKAY *Multi-Grip* Tire Chains have *two traction bars per link* for *double* efficiency. Traction bars are welded to links at scientifically determined angles for maximum results.

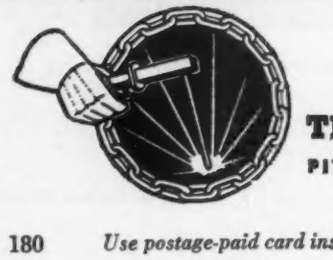
2 McKAY *Multi-Grip's* "hold-efficiency" actually *increases* with wear. As traction bars wear flat, they become progressively sharper and "dig in" all the better.

3 McKAY *Multi-Grip's* double-bar design gives more traction area because the *entire* surface of *both* bars contact the road . . . a lot of extra "bite" for a little extra cost.



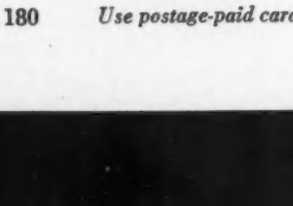
4 McKAY *Multi-Grips* minimize side slip and power skids because the traction bars are not only positioned scientifically—they also fully utilize the gripping power of *both* longitudinal and end surfaces.

5 McKAY *Multi-Grips* DO wear longer! Both traction bars and links are made from the same, case-hardened steel. The bars take the punishment, postponing link wear for many miles.



6 ***EASIER TO PUT ON AND TAKE OFF WITH KLIP-LOCK***

Only McKAY Tire Chains have the exclusive easy-to-use *Klip-Lock* Fasteners. Nothing to jam, clog or stick. Draws chain up tightly, locks securely . . . but unfastens with one hand!



Multi-Grip and Regular Tire Chains are DISTRIBUTED THROUGH JOBBERS

THE McKAY COMPANY

PITTSBURGH, PA. • Sales Office: YORK, PA.

LEGISLATIVE OUTLOOK

(CONTINUED FROM PAGE 56)

ment, highway safety, Federal aid, taxation, safeguarding highway revenues, reciprocity, regulation and sizes and weights.

National Highway Program

THE question of highway development has been a much discussed subject in recent months. It is generally known that highway construction and even maintenance was at a standstill during the war years. It is also history that the Federal Government authorized an expenditure of Five Hundred Million Dollars a year for the first three postwar years, with the understanding that the states will match on a 50-50 basis, except in the matter of costs of right-of-way in which the Federal Government expenditure is limited to one-third.

During the sessions of the 44 state legislatures which met in 1945, a total of 124 bills, bearing on the postwar highway program, were enacted. Further legislation along these lines is expected in some of the eight states that meet in regular session during 1946.

There is no question at all in the minds of highway users that the people of the United States (to quote from one of the Conference policies) "must have roads suitable for the movement of peacetime and wartime traffic with safety, economy and facility." But the highway users, because of the experience with make-work projects during the thirties and promotional schemes, are keenly alert to the numerous problems that will

(TURN TO PAGE 182, PLEASE)

● WHO PREDICTED IT?

ANSWER

(To Question on Page 154)

Mother Shipton, a prophetess who is supposed to have lived about 400 years ago (though it is doubtful if she ever really existed). There is reason to believe that this particular prophecy was not written until 1862.

ROUGH RIDERS NEED QUALITY TARPS

uniformity makes the big difference

Smooth, even selvedges can give you snug, flap-free fit despite high winds and rough riding—top-grade cotton fabric can keep weather and road-grime always outside—and you can have both these qualities every time you buy tarps made from MT. VERNON Extra, the duck that can "rough it" when your trucks have to—and come up neat and weatherproof after the longest hauls under the roughest kind of service.

MT. VERNON-WOODBERRY MILLS

TURNER HALSEY
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Branch Offices: CHICAGO • NEW ORLEANS • ATLANTA • BALTIMORE • BOSTON • LOS ANGELES • SAN FRANCISCO

LEGISLATIVE OUTLOOK

(CONTINUED FROM PAGE 180)

arise in the postwar program. They will look at any proposed legislation in their respective states to make certain that construction, reconstruction and maintenance of roads are shrewdly planned to take care of current and future traffic needs and that, most of all, each program in all its phases is consistent with and measured by the taxpayer's ability to pay.

They will also closely scrutinize further Federal appropriations to make certain that they will keep pace with sound planning.

While the money that has been appropriated by the Federal Government for highway development is generally thought of as a three-year program, the officials both in the Federal Government and in the states recognize that, on the basis of the planning, acquisition of the rights-of-way and the construction, and other items, it would be five years or so before this work would be completed.

This practical side of the picture is something with which the highway user groups plan to do some educating because, if the time element is not clearly understood, the tax grabbers, as happened in several cases during the 1945 legislative sessions, will use the incomplete information on the Federal appropriation as a means of increasing motor vehicle user taxes. The Federal authorizations should not be made a lever for bringing this about.

Vehicle Tax Revenues

MUCH improvement can be made from present practices in many states in the fund-raising and expenditures for roads. National highway user groups are in general accord that the growing needs of the nation demand that all revenues derived from motor vehicle taxes be spent solely for highway purposes. Earmarking of these revenues in all states is essential before tax increases are even given consideration.

The motor vehicle owner groups in Pennsylvania and Kentucky last month saw their states brought into the column of those states which permanently have dedicated highway revenues solely to highway purposes by amendments in their constitutions. That makes a total of 18 in the column with 30 more to go.

Trade Barriers

PRELIMINARY steps are being taken in other states, some of which meet in 1946, to break down the trade barriers through adoption

(TURN TO PAGE 184, PLEASE)

WHO SAID IT?

ANSWER

(To Question on Page 156)

The "old curmudgeon" himself, Petroleum Administrator Harold L. Ickes, in a rebuke to those who couldn't see that gasoline rationing should apply to them, even though the nation was locked in a life-or-death struggle.

the TWO ACES

Here is the unbeatable combination for fast, good looking, dependable and low cost welding.

MARQUETTE
REGISTERED U.S. PAT. OFFICE

WELD-ALL ELECTRODE KIT

This handy kit contains a generous supply of 12 types of rod in various sizes. It is designed to make all welding jobs easier. Enables you to make dependable welds on all types of metal. Handy chart on cover flap identifies each rod and lists the jobs for which it is especially designed. The Marquette Weld-All Kit prepares you for all metal breakdowns that may come along.

"The Key to Better Welding"

MARQUETTE
REGISTERED U.S. PAT. OFFICE

A.C. ARC WELDERS

Marquette A.C. Arc Welders are designed to take all welding jobs in stride from light body and fender metal to heavy truck and trailer frames. The exclusive A.C. feature of "Balanced Polarity" gives Thorough Penetration and Metal Control with a *Single* rod . . . and completely eliminates the problem of troublesome "Magnetic Blow." All Marquette Welders are completely equipped with no extras to buy.

These features make versatile Marquette Welders ideal for keeping your fleet repaired and on the road.

MARQUETTE MFG. CO., INC.
Minneapolis 14, Minnesota

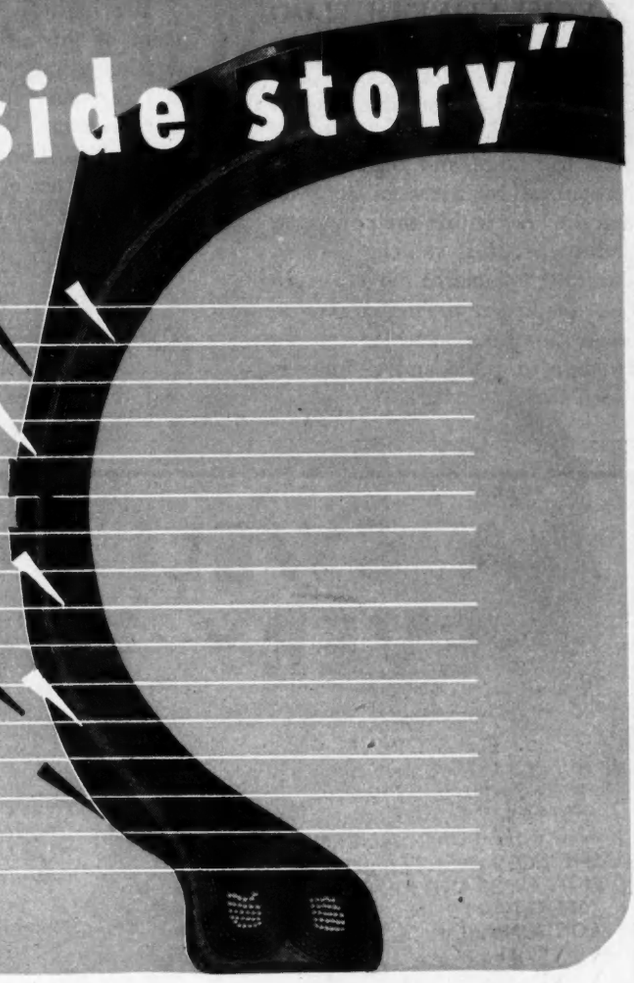
MARQUETTE
REGISTERED U.S. PAT. OFFICE

Welding EQUIPMENT
ELECTRODES And SUPPLIES

here's the "inside story"

DISTRIBUTED
STRESS
CONSTRUCTION

gives COOPER
TRUCK TIRES
longer mileage!



CUTAWAY shows the scientific balancing of Cooper Distributed Stress Construction tires. Tire-killing "hinge spots" (where tire bends more sharply than at some other point) are avoided by distributing breaker, lock-in cord ends, bead reinforcement ends and chafer ends throughout body so that none come together to cause excessive friction and heat build-up.

In these days of greater truck speeds and bigger loads, you need the cool-running, rugged dependability of Cooper Distributed Stress Construction tires. Complete in-balance construction guards against premature tire failure, delivers extra trouble-free miles at low cost. Ask your nearest Cooper dealer to give you the complete facts and figures.

The Cooper Corporation, Findlay, Ohio

Always Look For . . . Ask For

COOPER D S C TRUCK TIRES

LEGISLATIVE OUTLOOK

(CONTINUED FROM PAGE 182)

of reciprocal agreements between the states on the question of motor vehicle use taxes and regulation. It is recognized by users in some states that the laws within their states which unduly penalize vehicles moving in interstate commerce have to be modified in order to make reciprocity mean anything, and to encourage freedom of trade and commerce between the states.

The highway user groups' treatment of this problem will be based on the premise that a vehicle properly registered in and complying with the licensing laws of the state in which it is domiciled should be permitted to travel in all other states without the imposition of additional fees.

Size and Weight Limits

SIZE and weight limitations will also be in the forefront in several of the states that meet in regular session in 1946. When the country was up against the war emergency, the spotlight was thrown on the bottlenecks which some states had created against the movement of trucks and buses. Numerous proclamations and orders that were issued by state officials on the basis of emergency legislation permitted increases in the allowable weights during the war.

What was needed in wartime should set the course for a free flow of goods in interstate commerce in peacetime. Yet some states have already rescinded their emergency orders because they consider the emergency ended.

The eyes of the country will be focused on Kentucky during the 1946 legislative sessions because its sizes and weights are far below other states in many respects, and they are under the floors that have been recommended by the most conservative highway and bridge authorities in the country.

Experiences of Kentucky motor vehicle owners in past efforts to make their state's limitations more in conformity even with states in their natural trade area, have conclusively proved that the limitations are not based on sound engineering opinion.

The year 1946 might well show the degree to which nuisance legislation advocated by competitors may be expected. But the soundness of the user program is expected to appeal to the public as in the best interest of progress.

END

(Please resume your reading on p. 57)

A SWELL JOB EVERY TIME

I'LL STOP AT RILEY'S IN THE MORNING AND HAVE THAT GAL INSPECT MY CARBURETOR AND FUEL PUMP. I'LL BET SHE DOES A SWELL JOB WITH HYGRADE REPLACEMENT PARTS IN CONTAIN-ALL KITS.
YOU OLD BUZZARD, YOU NEVER TOOK YOUR CAR TO RILEY'S BEFORE.
OUR MABEL Rebuilds your CARBURETOR AND FUEL PUMP in a Jiffy with HYGRADE REPLACEMENT PARTS CONTAIN-ALL KITS
RILEY'S SERVICE STATION

Hygrade Line AUTOMOTIVE PRODUCTS

HYGRADE REPLACEMENT PARTS

"Engineered for Old Units"

CARBURETOR AND FUEL PUMP PARTS IN CONTAIN-ALL KITS

SPEEDOMETER CABLE, CASING, TIPS, SHAFTING

FUEL LINES & FITTINGS

HYGRADE PRODUCTS CO., INC. LONG ISLAND CITY 1, N.Y.

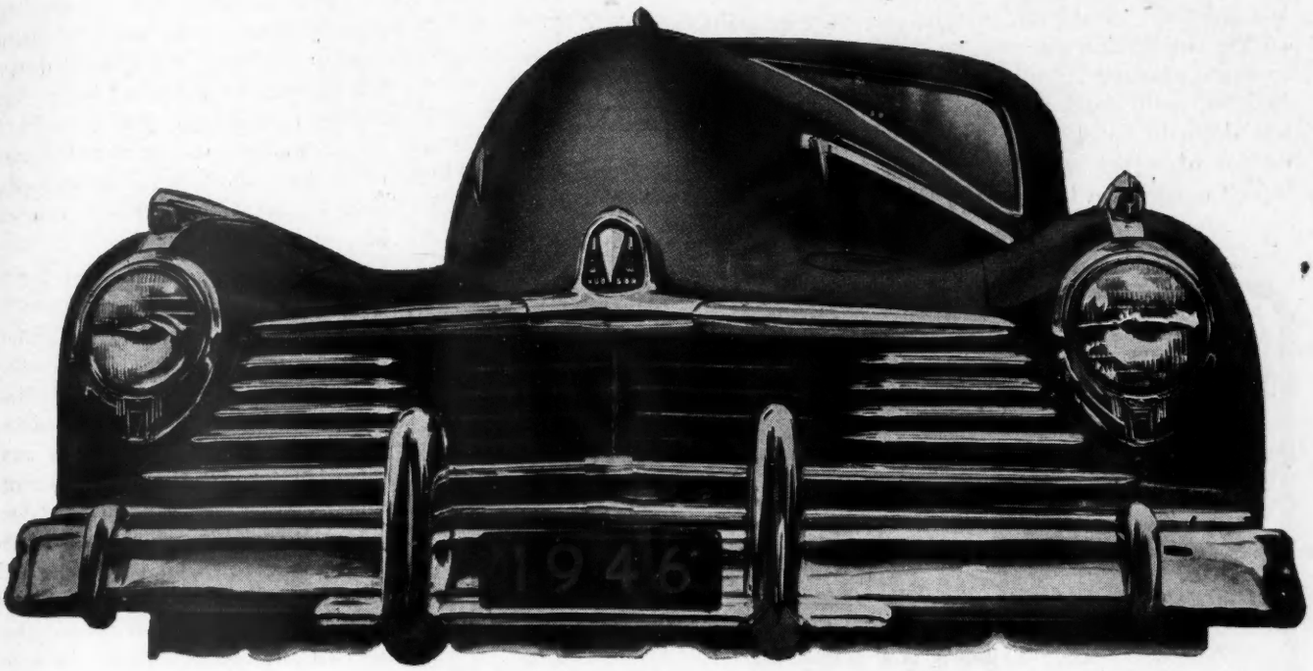
WHERE IS IT?

ANSWER

(To Question on Page 159)

Pennsylvania. This is the "Good Road" amendment to the State Constitution. Voters approved it 7 to 1. It will prohibit any future legislation, for all time, from taxing gasoline, autos, and trucks, or licensing operators, for any purpose except highway construction, maintenance and repair, highway safety, and air navigation facilities.

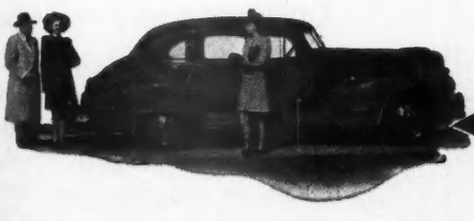
The 1946 HUDSON



Spicer Equipped as always!

Spicer universal joints have been standard equipment on Hudson motor cars since they first were built in 1909. This 37 year record of dependable Spicer service will continue in the sleek new 1946 Hudson automobiles now leaving the assembly lines. And each new Hudson on the road will add greater prestige to Spicer engineering and manufacturing skill . . . for 42 years the standard of excellence in the automotive power transmission field.

Spicer Manufacturing Corporation, Toledo 1, Ohio



42 YEARS OF
Spicer
SERVICE

REDUCING MAINTENANCE

(CONTINUED FROM PAGE 55)

tion analyzer can be made. In 1928, the corrected maintenance per gallon was $.056, including all body repairs and painting. Test procedure based on the combustion analyzer was introduced gradually, starting in 1929. In 1938, or 10 years later, the figure was down to $.0245 which is a reduction of 56 per cent. It remained in that range up to 1941; the low figure of $.0206 was reached in 1940. Figures for the war years following 1941 are distorted and are omitted as they serve no useful purpose in this comparison (1944 was up about 20 per cent above normal).

The reduction of 56 per cent in maintenance mentioned above cannot all be credited to the use of the combustion analyzer. The best that can be done is to list four of the more important factors that have contributed to the saving, and point out the part played by the combustion analyzer. They are shown in Fig. 3.

Catch Troubles While Small

REFERENCE has already been made to the fact that a check-up of the engine condition with instruments showed up many small defects which could be remedied before they caused trouble. In proof of this, a great number of specific instances could be cited, but the general idea will be illustrated in the two examples following.

The engine in one of our trucks has given a very good account of itself, at least up to the present 90,000 miles. However, inspection based on the combustion analyzer gets much of the credit. On two different occasions during this mileage, a considerable compression leak was detected. In both cases, investigation showed that the valve seats had become loose and that the valves had become badly warped. It is quite probable that continued running under such conditions would have resulted in wrecking the engine. Without instruments, it is very doubtful that this condition would have been detected. A routine compression check gave the clue when the trouble was still small so that repairs were possible before excessive damage had occurred.

In another of our trucks, valve leakage at 45,000 miles was sufficient to require that the head be removed. Warped valves were found, as expected, but also at this time it was noted that two small cracks had developed in the top of the block between the cylinder bore and valve seats. These cracks were all so small that they could very easily be cold-welded. This is a simple repair and

(TURN TO PAGE 188, PLEASE)

They're TOUGH!

"Cleveland" HOOKS

● BINDING—GRAB—SLIP—TOWING—END GATE CHAIN—SNAP—SPREADER CHAIN

Drop forged from open-hearth steel, scientifically designed and expertly made "Cleveland" Hooks stand up under terrific strain. They've got to be tough *and are tough.*

Only two sizes of our large and complete line are illustrated below.

FOR BIG JOBS

Drop Forged and Heat Treated—Ready to Apply

CHAIN HOOKS

Size Round
7/16
1/2
5/8
3/4

In Peace Time as in War Time we will continue to serve in such a manner as to retain the high degree of faith vested in us.

The **CLEVELAND HARDWARE & FORGING** *Co.*

Est. 1881

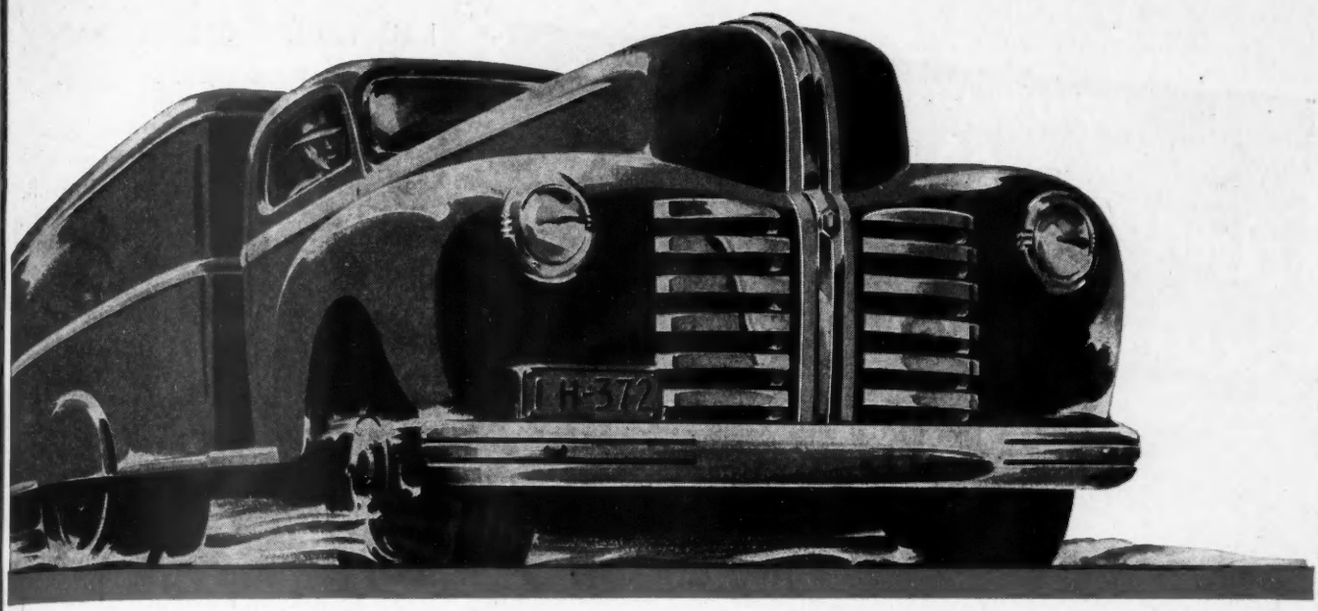
3264 EAST 79th St. CLEVELAND 4, OHIO

● WHO CONDEMNED THEM?

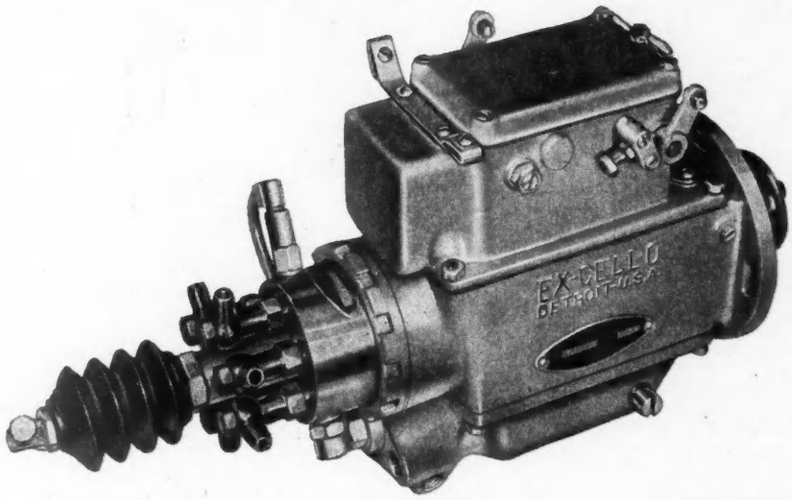
ANSWER

(To Question on Page 163)

Franklin D. Roosevelt—in his message to the Council of State Governments meeting in Chicago in April, 1939, to consider State cooperation for the removal of trade barriers.



In War or Peace . . still Dependable



Fuel Injection Equipment for DIESEL Power

EX-CELL-O Fuel Injection Equipment is again ready to do a peace-time job for Diesel Engine Builders.

The Type KB Ex-Cello-O Fuel Injection Pump for variable speed applications features automatic timing that provides maximum power output and minimum fuel consumption.

A worthy complement to the KB pump is the Ex-Cell-O Nozzle. Backed by seventeen years of research and production, it is designed for trouble-free service.

Write Ex-Cell-O today for complete information.

Fuel Injection Division

EX-CELL-O CORPORATION XLO DETROIT 6, MICH.

EX-CELL-O for PRECISION

EX-CELL-O

RADIATOR SPECIALTY COMPANY

Announces 2 new additions to the SOLDER SEAL family of guaranteed products

WATER PUMP LUBRICANT AND ANTI-RUST

A specially prepared soluble oil—exactly what water pump manufacturers recommend using in place of grease—for lubricating water pumps, bearings and seals. Prevents wear, stops squeaks, squeals, dry-bearing chattering and most water pump leaks. Anti-rust ingredients prevent deposits of rust, scale and sludge—keeps them from clogging narrow water passages.

SUPER SOLVENT AUTO COOLING SYSTEM CLEANSER

An *oxalic acid* cleanser. Completely dissolves all rust, scale and sludge into a thin watery solution which flushes out just as easily as water. Prevents "hot spots" from clogged circulation. No reverse flushing is required. The neutralizer, packed in the lower part of the container retards the formation of rust and scale. Easy to use and harmless to hose and metal parts.

SOLD ONLY THROUGH THE TRADE

RADIATOR SPECIALTY COMPANY
CHARLOTTE 1, NORTH CAROLINA
RADIATOR SPECIALTY COMPANY OF CANADA, LTD., TORONTO 2.
GOLDEN STATE RUBBER MILLS, LOS ANGELES 1, CALIF.

REDUCING MAINTENANCE

(CONTINUED FROM PAGE 186)

can be done without removing the engine from the chassis and without preheating the block. As a result, this block is still in service at 82,000 miles with original rings and original pistons.

Had these cracks remained undetected, they undoubtedly would have increased in size to a point where the repair might have become too large to be handled by cold-welding. In this case, the block would have had to be removed completely. Then it would need to be preheated for the regular welding job, and after preheating would have been so warped that in order to continue in service it would have required a rebore job. This, of course, would call for a complete set of new pistons and all the attendant expense in addition to the necessity of providing a spare truck while it would be out of service for repairs.

Increases Gas Mileage

WE ALSO were anxious to know the effect of instrumentation on gasoline consumption. Careful records were kept of gasoline mileage for one year before and one year after combustion analyzer inspection routine was installed, and the comparison showed a 10 per cent saving. Some trucks could not be improved, while others saved more than 10 per cent, resulting in the average as stated.

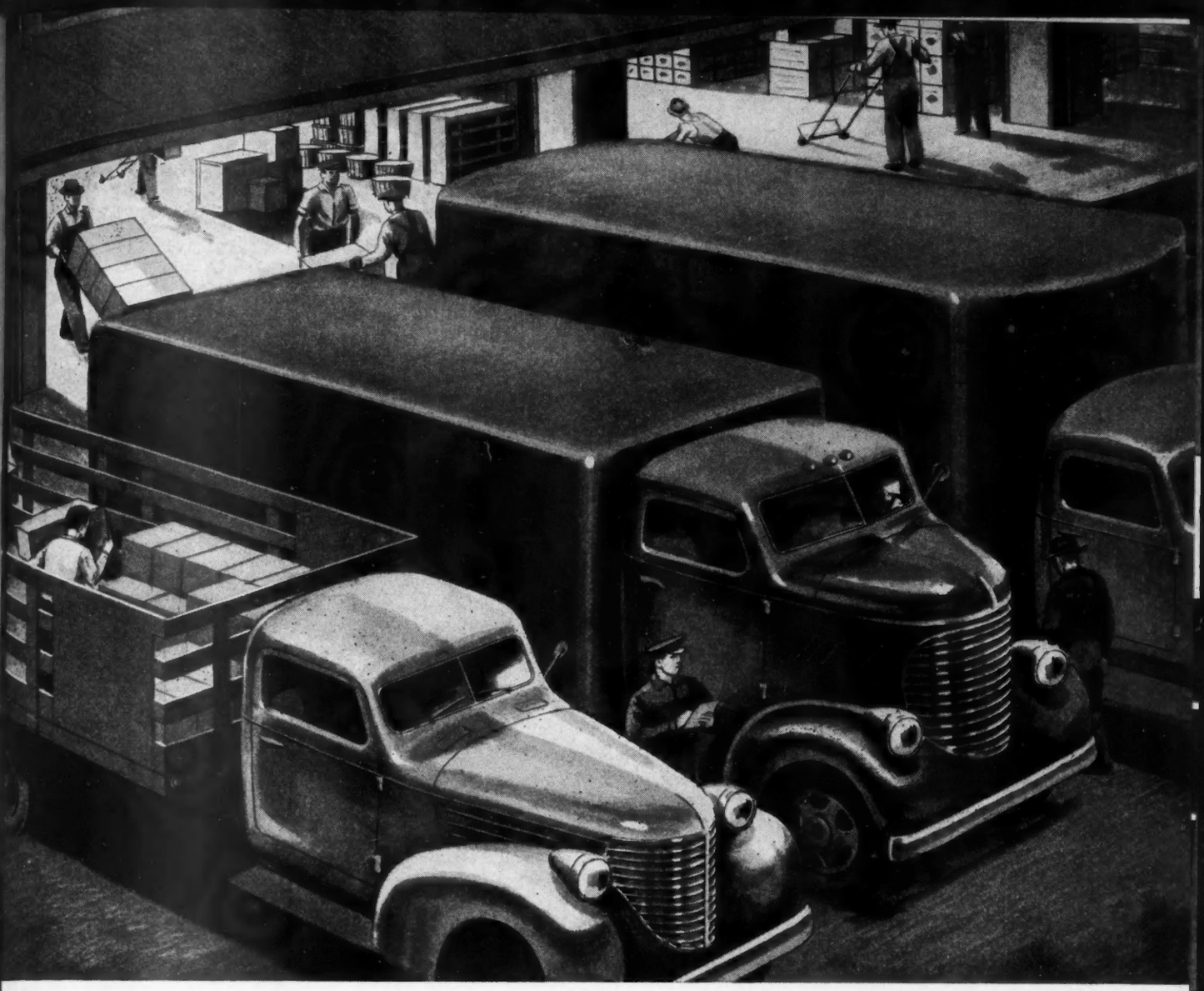
This increase is the result of gains from two sources.

1. Better adjustment of the air-fuel ratio.

2. Improved mechanical condition of the engines due to correcting minor defects as indicated by the use of instrumentation. Previously, these defects were too slight to be noticed without the instruments.

Here it is well to introduce a note of caution. Instruments are only as good as the operator who uses them. The operator must know that the per cent combustion efficiency for maximum power is different from that for maximum economy. Incidentally, the term per cent combustion efficiency is another way of denoting a given air-fuel ratio, which is also

(TURN TO PAGE 190, PLEASE)



AIR BRAKES STOP 'EM ALL

Heavy or light, there's a genuine Bendix-Westinghouse Air Brake designed especially for every class of service. Naturally your business is different and Bendix-Westinghouse takes this into consideration when it offers a control tailored exactly to meet your individual requirements ★ Consult your local authorized Bendix-Westinghouse Distributor. He's an expert on braking problems whose service has proved invaluable to thousands of operators like yourself. His recommendations you can rely upon and it may surprise you to know that the conversion to genuine Bendix-Westinghouse Air Brakes will be to your distinct economic advantage. At any rate, it will pay you well to investigate this time tested power-to-stop which bears the unqualified endorsement of the nation's leading manufacturers and operators.

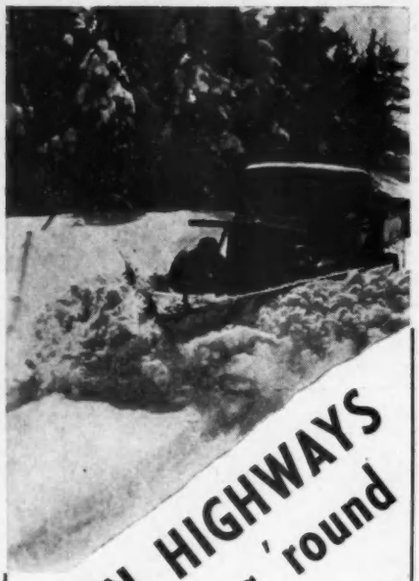
BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY . . . ELYRIA, OHIO

Bendix-Westinghouse

AIR BRAKES

AND PNEUMATIC CONTROL DEVICES

IT IS SIGNIFICANT THAT AMERICA'S FINEST MOTOR TRUCK FLEETS ARE EQUIPPED WITH BENDIX-WESTINGHOUSE AIR BRAKES



OPEN HIGHWAYS the year 'round

Assure open roads through winter's deepest drifts with dependable Baker truck plows. Built in a wide range of sizes and types to meet a wide variety of conditions, Baker snow plows are cutting snow removal costs in all sections of the snow belt.

Equipped with dependable Baker Hydraulic controls, tripping blades, specially designed moldboards with provisions for easy attachment and removal, Baker plows have been the first choice ever since 1908. You can depend on Baker when the going is tough.

THE BAKER MFG. CO.
571 Stanford Ave.
Springfield, Ill.

BAKER
TRUCK AND TRACTOR SNOW PLOWS

REDUCING MAINTENANCE

(CONTINUED FROM PAGE 188)

sometimes expressed in terms of per cent gasoline wasted. Also, it is important to know how much of one it is necessary to sacrifice in order to attain the other. For instance, the power curve peaks at about 74 per cent combustion efficiency, but it is quite flat between 64 per cent and 82 per cent, so that for all practical purposes there is no difference in power in this range.

However, in an ordinary passenger car, there is as much as two miles per gallon better economy with combustion efficiency at 82 per cent as compared with 64 per cent. Peak economy is at 97 per cent, but the gain in economy is very slight over the 82 per cent point. Therefore, rather than sacrifice power, which drops by 1/20 from the 82 per cent point to the 97 per cent point, the operator who understands these facts will set for the 82 per cent point under full-throttle operation. This is an excellent compromise since it assures peak power output and also gives near-peak economy. Carburetors are now calibrated so as to provide a rich mixture automatically whenever the throttle is opened to a point near 5 in. of vacuum at the intake, which is about ¾ of full-throttle position. At openings less than that, economy jets provide leaner mixtures of higher combustion efficiency, which give increased mileage at cruising loads.

In the early days, these advantages were not available. Now, the specialist who understands these characteristics of carburetors can adjust for economy in part-throttle operation and still have peak-power automatically under full-throttle operation, the only time it is really needed.

Clean Combustion Is the Key

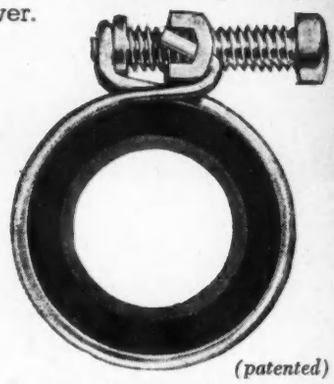
AS TO the part that clean combustion contributes to the economical and trouble-free operation of engines, only recently is it getting the attention it deserves. This problem was stressed at the Annual Meeting of the Society of Automotive Engineers in January of 1945. It was found that when samples of oil were sent

(TURN TO PAGE 192, PLEASE)

it's not magic

. . . the way the new Central "360" Wire Clamp Hose keeps its vise-like grip on any type of hose. It's made to "hold-on" to the last mile on the speedometer. Clamps completely around the hose . . . can't be loosened at any point of contact by jolt or vibration.

Manufacturers, mechanics and owners can now kiss their "leaky-hose-troubles" goodbye forever.



(patented)

Before being offered to the trade, the Central "360" Wire Hose Clamp was subjected to every conceivable test . . . for every possible application. RESULT . . . it's unconditionally guaranteed. Costs no more. Worth much more.

CENTRAL "360"
WIRE HOSE CLAMP
CENTRAL EQUIPMENT CO.
900 S. WABASH AVENUE, CHICAGO 6, ILL.

You'll do a Better Job with...

MoPar GASKETS

AVAILABLE IN COMPLETE SETS

ENGINE REBUILDING SETS
VALVE SPRING COVER SETS
TRANSMISSION SETS
VALVE GRIND SETS
MANIFOLD SETS
OIL PAN SETS

DESIGNED BY CHRYSLER CORPORATION ENGINEERS

FOR

Plymouth
DODGE
DeSoto
CHRYSLER
DODGE Job-Rated TRUCKS

MoPar Gasket Sets fit right, seal tight... give you the correct gaskets you need for specific repair jobs... enable you to do *better* and *faster* work, satisfy more customers. MoPar Gasket Sets are factory-engineered by the men who designed the vehicles and who best know their specific requirements.

NOTE TO ALL REPAIR SHOPS

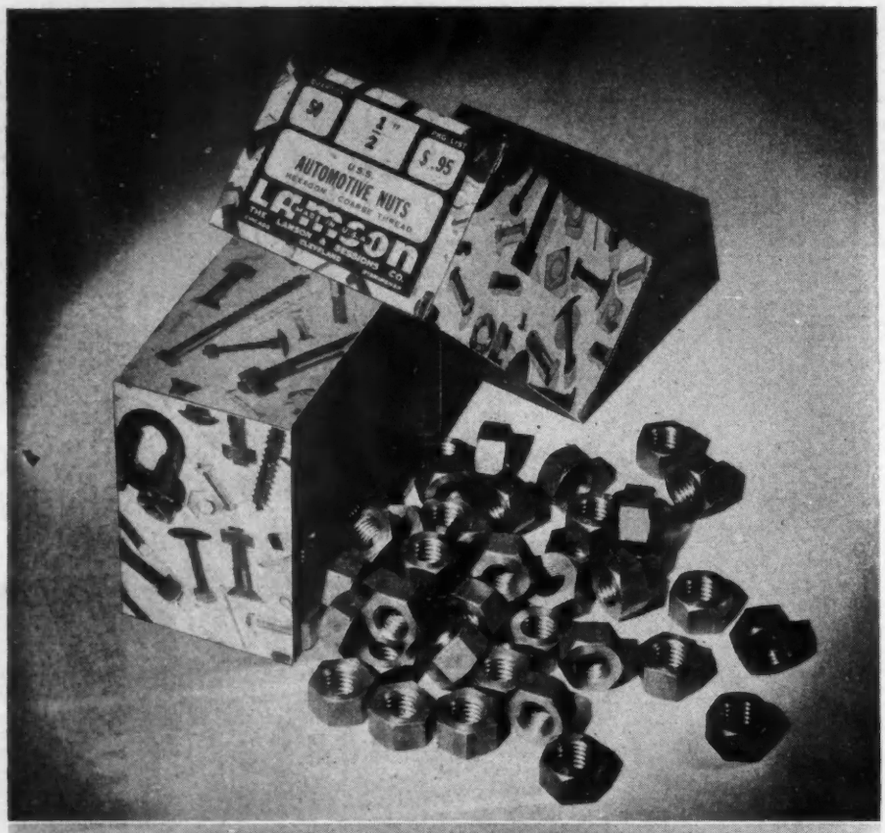
If you need parts of any kind for a Plymouth, Dodge, DeSoto, or Chrysler, obtain them from an authorized dealer for these vehicles.

BUY VICTORY BONDS

CHRYSLER CORPORATION PARTS DIVISION
MoPar
TRADE MARK
PARTS AND ACCESSORIES
FACTORY ENGINEERED AND INSPECTED

Thursday night's radio highlight—"The Music of Andre Kostelanetz"—Music Millions Love—with famous guest stars—CBS—Thursdays, 9 P.M., E.T.

CHRYSLER CORPORATION—PARTS DIVISION, DETROIT 31, MICHIGAN



LAMSON USS AUTOMOTIVE NUTS FOR REPAIR JOBS

• Automotive engineers' steady trend toward making the modern motor car more compact in construction yet with increased passenger space is emphasized by the Lamson USS Automotive Nut—an American Standard Light (SAE) Nut in outside dimensions, but tapped with National Coarse (USS) threads. The same wrench sizes are used for both Fine Thread Nuts and Lamson USS Automotive Nuts —but weight savings by the latter nut are considerable, used generously as they are on the modern motor car. During the war much steel was saved through manufacture of this lighter weight nut first distributed by Lamson & Sessions. Stocks of Lamson USS Automotive Nuts are ample. It is priced the same as the American Standard Light (SAE) Semi-Finished Hexagon Nuts.

THE LAMSON & SESSIONS COMPANY
General Offices—Cleveland 2, Ohio
Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

LAMSON & SESSIONS
BOLTS · · NUTS · · COTTERS · · CAP SCREWS
Ask your Jobber for the Lamson Line

REDUCING MAINTENANCE

(CONTINUED FROM PAGE 190)

out to laboratories to be tested in standard test engines, alike in every respect, very often there would be a marked difference in the results reported by different laboratories although identical samples were tested. Naturally, such a condition aroused much interest and curiosity. Finally, it was found that if, when the samples of oil were shipped to the different laboratories, a sample of gasoline was also sent along, making sure that the fuel samples were identical, only then it was possible to get identical results on the oil tests.

Intensive investigation showed that, although different gasolines met certain basic specifications, there was nevertheless a vastly different amount of soot formed when they were burned. It was explained that there are over 6000 different combinations of hydrocarbons which constitute gasoline and that various combinations burn cleaner than others. This factor has been the cause of most of the discrepancy in oil-test results from different laboratories and has reached such proportions that it will need to be controlled in the future, if duplication of results is to be attained or if oil tests are to have value from the standpoint of comparison.

The above certainly points out the important part played by soot as far as lubrication is concerned. Likewise, it is true that when the air-fuel ratio is allowed to wander, or is not being controlled, much more soot is contributed by certain mixtures which are not within the prescribed range. And undoubtedly there is general agreement with the thought that it is better to prevent soot from forming in the first place, or at least keep it at a minimum, than to have to try to get rid of it after it has formed.

That is the special field in which the combustion analyzer is so effective. Its purpose is to tell whether fuel is being burned cleanly and efficiently. It helps get rid of trouble right at the source before it has had a chance to cause damage.

When considering combustion analyzers, two things are very important: 1. Reproducible results. 2. Readings reliable over all ranges of air-fuel ratios.

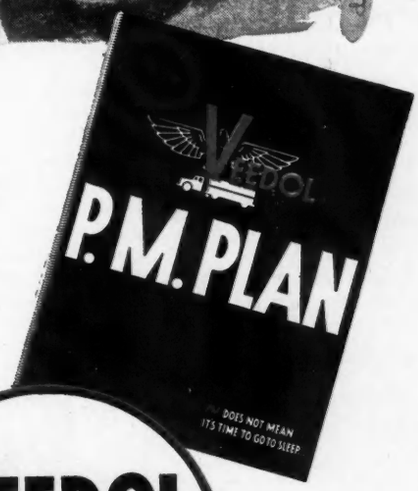
The analyzer referred to herein is

(TURN TO PAGE 201, PLEASE)

advantages are you waiting to get?

Send for the Veedol P. M. Plan, too!

The Veedol Preventive Maintenance Plan, successful with over 800 fleets, can help yours. The Plan fits any number of units—costs only 18¢ per truck. Ask about it!



TIDE WATER ASSOCIATED OIL COMPANY

VEEDOL
OILS AND GREASES

√ Buy Victory Bonds and hold them

TIDE WATER ASSOCIATED OIL COMPANY

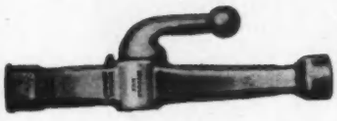
17 Battery Place, New York 4
Thompson Bldg., Tulsa 2

● In a test conducted for the observation of Underwriters' Laboratories and Factory Mutual Laboratories, 500 gallons of 300 degree F. flash point paraffin oil were "touched off."

This "transil oil" fire was large (20 ft. x 20 ft. area). After burning for 2 minutes, a DUGAS 150-A Wheeled Extinguisher equipped with the *new dual-stream nozzle* was brought into action.

In a mere 37 seconds, the inferno was extinguished.

NEW NOZZLE STEPS UP EFFECTIVENESS



NEW DUAL-STREAM NOZZLE deals effectively with spill fires and fires difficult to reach because of height or obstructions. Designed for use with DUGAS Wheeled Extinguishers, the new Dual-Stream Nozzle greatly increases fire-fighting range and effectiveness. A turn of the handle gives a *straight* stream with a range of 45 feet—or a *fan* stream with a range of 15 feet.

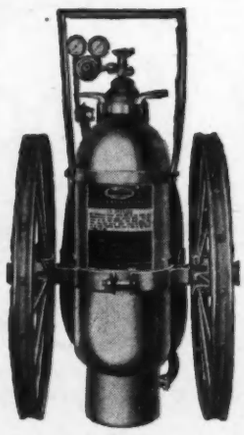
Quick Facts about DUGAS Dry Chemical

- For extra-hazardous fires involving flammable gases, liquids, greases or electrical equipment.
- Not an electrical conductor.
- Non-toxic, non-corrosive, non-abrasive.
- Not affected by extreme cold or heat.

Write today for complete information regarding DUGAS Wheeled Extinguishers with the New Dual-Stream Nozzle... and DUGAS Hand Extinguishers.

AN ANSUL PRODUCT duGas THE MASTER OF FLAME

Approved by Underwriters' Laboratories, Factory Mutual Laboratories



DUGAS 150-A WHEELED EXTINGUISHER

ANSUL CHEMICAL COMPANY, MARINETTE, WISCONSIN
DUGAS DIVISION

J. A. (Jim) Franklin, newly appointed assistant sales manager of the Prest-O-Lite Battery Co., Inc., Indianapolis, Ind.

M. J. "Myke" Way now sales manager of accessories and repair materials in the Associated Tire and Accessory Division of The B. F. Goodrich Co.

Elmer E. Nichols has been appointed West Coast sales and service representative for the Edison - Splitdorf Corp., West Orange, N. J.

CCJ NEWSCAST

(CONTINUED FROM PAGE 114)

IHC Announces Appointments

The International Harvester Co., Chicago, Ill., announces the following truck personnel appointments: C. A. Samuelson, to manager of the St. Louis, Mo., Branch, succeeding J. W. Blackmore, who has taken over an IHC dealership; S. A. Hayes, to manager of the Minneapolis, Minn., Branch; E. N. Black, Sr., to manager of the Springfield, Mo., Branch; G. C. Murnan, to manager of the Cheyenne, Wyo., Branch; W. G. Schendel, to manager of the Harrisburg, Pa., Branch.

G. D. McCarthy has been named assistant manager of the Philadelphia Branch; E. E. Krogstad becomes assistant manager of the Tulsa, Okla., Branch; W. O. Bolitho is the new assistant manager of the Billings, Mont., Branch; W. C. Habert assumes the same position in the West Haven, Conn., Branch; and Wayne Greene becomes assistant manager of the New Orleans, La., Branch.

Auto-Lite Names Managers

One fleet supervisor and five representatives were named in November to the Merchandising Division of The Electric Auto-Lite Co.

Carl E. Stevens will serve as Auto-Lite fleet supervisor in the Midwest Division.

Representatives named include: Haddon H. Hall and Dixey M. Hilliard, Eastern Diision; John P. Albade and Jack E. Mackenzie, Central Division and Eerett D. Larson, Western Division.

END

(Please resume your reading on p. 106)

SIOUX VALVE FACE GRINDING MACHINE **WET GRINDER**

Wet Grinding Built In

Designed and built from the base up for wet grinding—most compact, complete and efficient machine of its kind. Assures factory precision in wet grinding valves, Ford valve tappets, and Ford valve stem ends. Chucking capacity ¼" to ⅝" diameter. No. 655 comes completely equipped. Write for full details.

Your Jobber Sells It

ALBERTSON & CO., INC. -:- SIOUX CITY, IOWA, U.S.A.

★ BRADEN WINCHES DO JOBS *Safely*

MODEL 81
Rated capacity, 50,000 lbs.
on first layer

This model is designed expressly for very hard service within its rated capacity. It is the oldest model heavy-duty winch in operation all over the world. Model 81 is equipped with BRADEN'S famous TRIPLEX Safety Brake, insuring *positive* safety on the toughest jobs.

BRADEN Truck Winches are engineered to do the toughest handling jobs . . . . SAFELY. Suspended loads are kept safely under control, at all times, by the BRADEN Fully Automatic Brake, which can be adjusted to suit the individual requirements of the load. That's why BRADEN Winches are specified for *exclusive* use on so many jobs.

Ask your nearest BRADEN Dealer how BRADEN Truck Winches can do your toughest handling jobs . . . SAFELY.

"Buy BRADEN . . . They are SAFER"

★ *Write for Complete Catalog*

For complete information on the entire BRADEN line of truck winches, see your BRADEN Dealer, or write for new catalog.

BRADEN WINCH COMPANY
1001 East Admiral Boulevard

BRADEN Winches

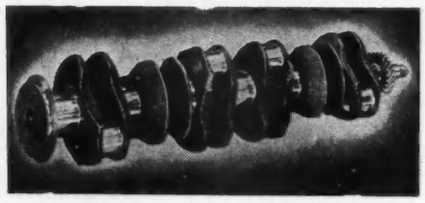
TULSA 3, Oklahoma

Diamond T Adds New Features to 1946 Models

DIAMOND T Motor Car Co. enters the postwar truck market with models from 1½ to 10-ton capacity and a range of gross weight from 13,500 to 50,000 lb. Some decorative and luxury elements have necessarily been sacrificed in the 1946 models, but numerous improvements have also been effected.

There is no change in major features. Continued are heavy duty seven-bearing engines with long-lived, non-warping blocks of heat-treated electric furnace molybdenum irons, employed in all models. Crankshafts have been redesigned for the heavy-duty line and now carry twelve counterbalances instead of six—a costlier construction adopted because it further reduces bearing loads and vibration.

Other features of Diamond T engine construction include Tocco-hardened crankshaft journals, force-feed lubrication, Zollner light alloy pistons, independent gear-driven water pump, recirculating-type thermostat for quick warm-up, and the cushion-cradle engine mounting.



Rear axles are all of the full-floating type with wheel-bearings correctly centered between the dual rear tires. Two-speed axles are available in all but the very largest models where extra-heavy duty dual reduction axles are employed singly or in tandem.

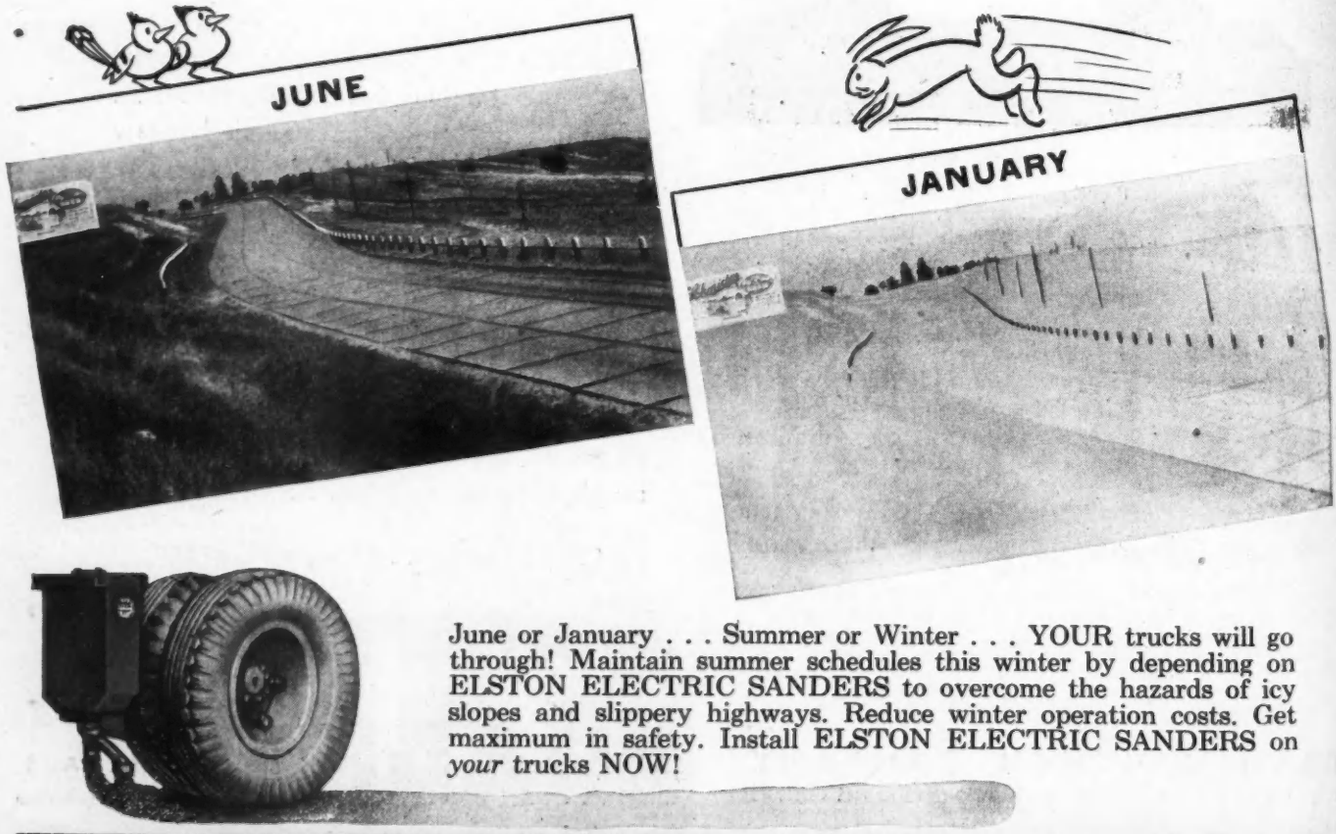
Another development found in all models is the heavy-duty intermediate driveshaft bearing. The usual self-aligning ball bearing is replaced by an equally flexible and far more rugged construction. The bearing proper is a heavy, double-thrust roller bearing. Maintenance of alignment is obtained by mounting it in a solid block of live rubber which is securely held under permanent compression.

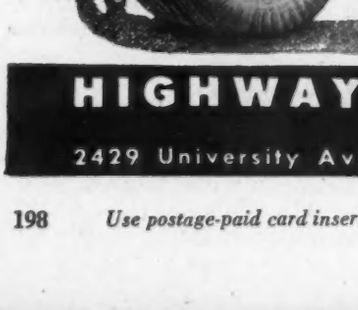
Similarly, compression type rubber bushings are employed at all steering shackles. No greasing or maintenance lubrication is ever required for them. This construction also eliminates metal-to-metal wear and rusted and "frozen" pins. Helper springs are standard on all models providing extra stability and capacity for maximum loads.

Steering is by cam and lever with ball bearings in the steering head and cam follower roller-bearing mounted. The twin-lever design is employed in the largest extra-heavy-duty models.

Power brakes are employed in all models with the Lockheed hydraulic system vacuum-assisted in the heavy-duty line and Westinghouse air

(TURN TO PAGE 262, PLEASE)





June or January . . . Summer or Winter . . . YOUR trucks will go through! Maintain summer schedules this winter by depending on ELSTON ELECTRIC SANDERS to overcome the hazards of icy slopes and slippery highways. Reduce winter operation costs. Get maximum in safety. Install ELSTON ELECTRIC SANDERS on *your* trucks NOW!

HIGHWAY SAFETY APPLIANCES, INC.
Mfgrs. of ELSTON ELECTRIC SANDERS
2429 University Avenue, St. Paul 4, Minnesota

REDUCING MAINTENANCE

(CONTINUED FROM PAGE 192)

of the catalytic combustion type. It is unique in that it burns and measures combustibles directly, while most others compare the thermal conductivity of CO_2 and other gases, against fresh air. Most analyzers have good reproducibility in the power range of air-fuel ratios but the exclusive feature of this instrument, working on a different principle, permits of greater sensitivity in the economy range—the region in which complaints are most numerous. As to calibration of the combustion analyzer, a simple and effective check can be made as frequently as desired merely by running a test on a predetermined mixture contained in sample bottles. All instruments are verified monthly for accuracy.

Clean Crankcases

To sum up, the fleet operator, after having used the combustion analyzer, experiences that feeling of confidence that comes from knowing the fleet is under control, a feeling that is acquired only after definite results in improved economy, performance and reliability have been accomplished.

Following is a partial list of additional instruments and gages which can be used in connection with the combustion analyzer.

Compression leakage gage.
Ignition tester.
Condenser tester.
Generator charge tester.
Top dead center finder.
Distributor contact spring tension scale.
Distributor terminal cleaning tool.
Fuel level sight gage.
Stethoscope.
Synchronizer and timer-universal.
Ford V-8 synchronizer and timer.
Neon timing light.
Stroboscope lamp.
RPM indicator.

END

(Please resume your reading on P. 56)

U. S. Axle Observes Anniversary

With the recent celebration of the silver anniversary of the U. S. Axle Co., Inc., Pottstown, Pa., George C. Lees, president, presented gold watches to four employees as a reward for 25 years of service.

2-Way Radio System to Operate in Chicago

Authority to operate a 250-watt FM radio station in Chicago for commercial trucking operations has been granted to Highway Radio, Inc., a subsidiary of American Trucking Assns., by the FCC.

John V. Lawrence, managing director of ATA and general manager of Highway Radio, said the station will be the first of its kind.

FCC also authorized Highway Radio to operate 100 trucks, each equipped with a portable transmitter, moving within a 40 to 80-mile radius of the Chicago station. The trucks will be owned by individual motor carriers, and the contemplated operation will necessitate a lease arrangement between Highway Radio and the truck owners to cover control of the radio equipment involved.

Such leases are now being arranged by Harry F. Chaddick, president of American Transportation Co., and chairman of ATA's radio communications committee.

When you install Fel-Pro Engine Gaskets, Metallic Pump Packings, Grease Retainers and other Fel-Pro Sealing Materials, it's "bad news" for those troublesome "Little Drips" of water or oil.

Fel-Pro Gaskets are scientifically designed to be right for your toughest jobs . . . Accurately die-cut for the finest performance. Use them on cylinder heads, manifolds, oil pans, pumps and any other place where "Little Drips" cause trouble. Available in boxes or sets for your convenience. To make sure of the right Gasket for each job, see your Fel-Pro Jobber *first.*

FELT PRODUCTS MFG. CO.
1520 Carroll Ave. • Chicago 7, Illinois

SYNTHETIC RUBBER · PAPER · CORK · FELT FIBRE · ASBESTOS
FEL-PRO GASKETS
packings • sealing materials

The Gentleman is Holding a Thin Blonde Hair

Can't see it? Few could see a thin blonde hair held before them! But when intricate electrical equipment calls for working to tolerances that defy the eye, craftsmen of Leece-Neville never miss. In over 35 years of designing and building electrical equipment, Leece-Neville has always maintained a high standard of precision. And this precision—in engineering and manufacturing—is one of the reasons Leece-Neville products are famous everywhere for their outstanding performance. To get the *best* in truck and bus starting and lighting equipment—for conventional or special requirements—see Leece-Neville first. *The Leece-Neville Company, Cleveland 14, Ohio.*

LEECE-NEVILLE

Pioneer and STILL Quality Leader

CRANKING MOTORS • GENERATORS • VOLTAGE REGULATORS • SWITCHES

Take a Tip from the Manufacturer

who has to put buses and trucks on the road that "keep rolling"—or else! Every bit of original equipment on the chassis is designed to keep operating costs at a minimum. When it came to the gas, oil and fuel lines most of the leaders in the bus and truck field standardized on Titeflex as far back as 25 years ago!

. . . and have stayed with Titeflex because this all-metal flexible tubing can stand the gaff of bus and truck heavy duty operations regardless of vibration, heat and road abuse. You will make no mistake when you follow the lead of the leaders in the bus and truck industry—and use Titeflex! Titeflex, Inc., 525 Frelinghuysen Avenue, Newark 5, New Jersey.

Titeflex

THE ALL-METAL FLEXIBLE TUBING THAT STAYS TIGHT

Every Brake Job should carry Good Will Insurance

IN brake repair work it's just as important to make a satisfied customer as to make a good immediate profit.

When you replace with Eis Brake Parts you know that every overhaul job will be *permanently satisfactory*. Eis quality and Eis engineering are the "good will insurance" that makes a friend of every customer, and brings him back to your shop again — for other jobs.

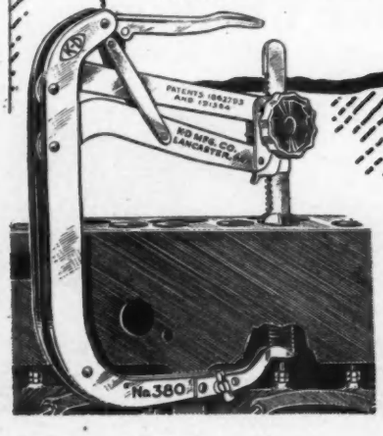
QUALITY EIS MFG. CO. INC. "THE BRAKE PARTS LINE"

From your Jobber. Write us for literature on complete line.

EIS MANUFACTURING CO.
MIDDLETOWN, CONN.

BRAKE PARTS · BRAKE FLUID · BRAKE TOOLS ·

VERSATILE, strong and speedy is the K-D No. 380 Valve Spring Compressor. Services nearly all motors, L-head, valve-head, old, new. Two sets adjustable tempered jaws. Opening size 10"x10¼". See this all-round shop favorite (and the rest of the K-D line) at your Jobber's. K-D Mfg. Co., Lancaster, Pa., and Hamilton, Ontario.



"COMMERCIAL CAR JOURNAL is the only periodical we read from cover to cover and keep as a reference, finding it contains invaluable information for our daily use."

—So says the President of a western freight line, operating 100 trucks. A good customer for you.

DIAMOND T ADDS NEW FEATURES TO '46 MODELS

(CONTINUED FROM PAGE 198)

brakes in all extra-heavy-duty models. The new Bendix "Hydrovac" vacuum booster of the smaller models is one of the important advancements that has been developed and perfected in war experience. This unit combines into one compact assembly a self-contained vacuum power brake system and controls, without external levers or mechanical linkage of any kind. There is no restriction with regard to the location of the Hydrovac cylinder, no mechanical strain on its supports and no interference of normal braking in the event of failure of the power system.

Brakes themselves are of unusually large size and ample capacity and carry lining of extra thickness for increased durability. Extra-heavy brake drums are cast of non-warping, non-scoring alloy iron.

Transmissions vary in size and range to match the needs in different models. Four and five-speed transmissions are standard in the heavy-duty line and in Model 702. Models 806H and 900 carry a 4-speed main and 3-speed auxiliary, and Model 910 has a 5-speed main transmission and 3-speed auxiliary, with a total of 15 forward speeds and 3 reverse.

Models 404HH, 509 and 614H make up the heavy-duty line with nominal payload ratings of 1½ tons, 2 tons and 2½ tons, respectively. The extra-heavy-duty line includes the 3-ton Model 702, 5-ton Model 806H and the 7½-ton Models 900 and 910. Both are available with dual-drive tandem rear axles.

J. D. Eby, manager of purchases of the Wagner Electric Corp., has been elected secretary of the company

Leo R. Peloquin has been appointed district sales manager for Western Pennsylvania, West Virginia, Eastern Ohio and Northern New York for the K-D Lamp Co.

TESTED ON "AUSSIE" TRAILS AND BETTER FOR IT

Standard TRAILER AXLES

Helping to win the Australian battle of supply, Standard Trailer Axles met every test. Supplies went through . . . the Jap was stopped. Today these same sturdy, war-proved Standard Trailer Axles are available to you as original installations and as replacements. They have earned the acceptance of many forward-looking manufacturers and maintenance men. Interchangeable with standard axles, and developed to the armed forces' specifications, Standard Axles will help your trailers achieve a higher degree of dependable service. Write today for full details about Standard Trailer Axles.

"BE SURE *Your* AXLES ARE *Standard*"

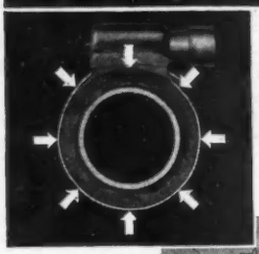
Standard Forge & Axle Company

MONTGOMERY 2, ALABAMA

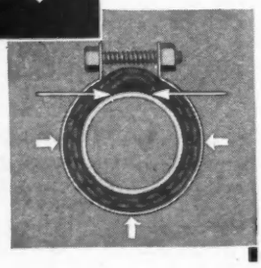
AXLES BRAKES FORGINGS TRAILER PARTS

CUT-AWAY SHOWS THE WORM DRIVE PRINCIPLE

"Aero-Seal"
WORM DRIVE
HOSE
CLAMPS



◀ "AERO-SEAL" PULLS UP EVENLY ALL AROUND



ORDINARY CLAMP DISTORTS HOSE ▶

True
TANGENTIAL
TAKE-UP means
NO DISTORTION
of Hose...

The belt-like tightening action of the AERO-SEAL Clamp gives *uniform pressure* all around. An ordinary clamp will squeeze and distort the hose at one point. AERO-SEALS produce a leakproof joint with *only moderate tightening torque*, whereas extreme torque is necessary with ordinary clamps to overcome the leakage opening resulting from distortion. Extreme tightening greatly shortens hose life. AERO-SEALS, originally designed for aircraft service, have *proved their ability to do a better job of clamping*. Try one for yourself, and see!

Send for **FREE SAMPLE!**

AIRCRAFT STANDARD PARTS CO.
1773 19th AVE., ROCKFORD, ILL.
Please send me one sample "AERO-SEAL"
Hose Clamp. Size preferred.....
NAME_____
COMPANY_____
ADDRESS_____
CITY_____ STATE_____

Industry's Wage-Basing Structure Involved in General Motors Strike

ALTHOUGH the extent of pay increases is an important issue in the General Motors strike, it is not the most significant one. The primary and all-important fight is over what yardstick shall be used in arriving at wage rates.

A clash of philosophies is involved. To most close observers the present struggle is much more fundamental and significant than the strikes over collective bargaining in 1937. If the union is successful in its contention that wages shall be directly proportionate to profits and that prices of the company's product shall be a factor in negotiations, the entire wage-basing structure that has prevailed over the years will collapse. It will be replaced by a system giving labor a measure of control over wages, prices and profits.

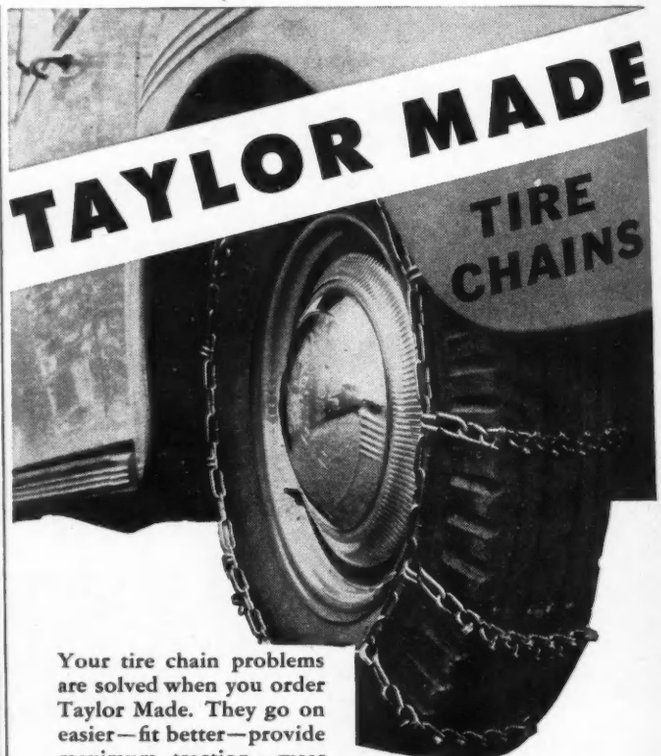
That is the ultimate objective of the UAW-CIO—a voice in the affairs of management. That is what the fight is all about. And that also is why General Motors, in a sense, is fighting the battle for all American industry.

It now seems obvious that as long as there is no common ground on which the two parties can meet there will be little basis for settlement. If it were only a matter of arriving at a wage increase through traditional methods of collective bargaining without introducing profits or prices, the strike probably would not have occurred at all or at least would have been short.

When the strike was called, the union already had in its pocket an offer of a flat 10 per cent increase for all hourly-rated workers. This is ample evidence that General Motors was willing to bargain the matter of wages. However, the offer was turned down because the corporation refused to comply with a union dic-

(TURN TO PAGE 266, PLEASE)

Be
100%
With
10%
•
Buy
Victory
Bonds



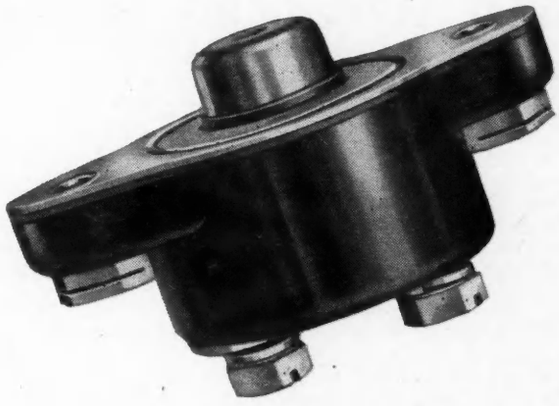
Your tire chain problems are solved when you order Taylor Made. They go on easier—fit better—provide maximum traction—wear longer. They're available in either twist link or bar reinforced types—for truck and passenger car tires. Write for prices and further details on letterhead.

ARMY NAVY ESTABLISHED 1873
T M
S. G. TAYLOR CHAIN CO.
Box 509-C-12 • Hammond, Ind.

FOR UNFAILING CIRCUIT PROTECTION

Install KLIXON CIRCUIT BREAKERS

KLIXON MANUAL RESET CIRCUIT BREAKER
—opens circuit when short or overload occurs. To reestablish circuit reset button is pushed. Available in various sizes and ratings up to 200 amperes. Weatherproof types available.



KLIXON AUTOMATIC RESET CIRCUIT BREAKER
—automatically closes and reestablishes the circuit a short time after opening. If overload conditions still exist, the breaker automatically continues to cycle. Available in various sizes and ratings up to 200 amperes. Weatherproof types available.

ELIMINATES REPLACEMENTS
KEEP EQUIPMENT ROLLING
SAFE AND ECONOMICAL

Now you can get permanent electrical circuit protection by installing Klixon Circuit Breakers in trucks and buses.
Simple and easy to install, Klixon Breakers protect electrical circuits from damage that is caused by shorts and overloads. They eliminate loss of time caused by blown fuses ...stop drivers from placing wire or other material between fuse clips thus preventing damage to the wiring or electrical mechanisms.
Klixon Circuit Breakers should be installed in such circuits as lights, generators, starters, horn, directional signals, refrigeration equipment, heater and trailer circuits. They are unaffected by harmless momentary overloads and shorts . . . *do not* give nuisance tripouts. They are available in many models and ratings in automatic and reset types. Write for complete information today. Samples are available on request.

SPENCER THERMOSTAT CO., ATTLEBORO, MASS.

KLIXON

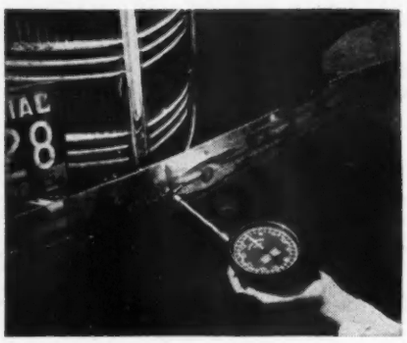
Uncle Sam Uses Them for Dependable Service On All Fronts

KEEP your motor units rolling with TUTHILL SPRINGS! Uncle Sam does—on all fronts. Into every spring we make goes our experience of sixty-three years in leaf-spring manufacture. Tough, strong, durable, TUTHILL can be depended upon to give reliable, lasting service. Investigate.

Submit your Springs problems to us.

The Finest Leaf Spring for 63 Years

TUTHILL SPRING CO. 760 W. POLK ST. CHICAGO 7



KNOW YOUR RPM

Jones Portable Tachometers make possible quicker check-ups with greater accuracy.

For checking engine speeds from crankshaft, generators, or other exposed rotating parts; trouble shooting without necessity of road tests. A wide variety of ranges—light weight and heavy duty; guaranteed calibration. Complete in carrying case with all accessories—$35.00 FOB Factory. Long Extension Arms available at slight additional cost for speed checks thru radiator grille.

Users include Seaboard Freight Lines, Standard Oil Co. of La., N. Y., N. J., U. S. Army Air Forces, U. S. Navy, Socony Vacuum Oil Co., General Motors Truck and Coach, American Fire Apparatus, Autocar Co., Atlantic Refining Co., International Harvester Trucks, Mack Trucks.

JONES MOTROLA

438 Fairfield Ave. Stamford, Conn.

AIR-GO 100% PETROLEUM PRODUCTS

MOTOR TONIC Reduces maintenance and operating costs . . . results in more engine power, more mileage per gallon, less wear and repair, freedom from carbon formations, sludge, etc. Add to any motor oil.

GAS FLUID Aids in reducing gasoline and oil consumption, prevents corrosion, assures cleaner top motors, reduces metal wear and loss, helps eliminate sticky valves. Complete details on request.

ALLEGANY OIL CO. 216 NO. CLINTON ST. CHICAGO 6, ILL.

GENERAL MOTORS STRIKE

(CONTINUED FROM PAGE 264)

tum that any wage increases would not be used as a basis for asking increases in prices.

All indications are that General Motors will not retreat from its adamant stand on opening its books or agreeing to any union dictated pricing policy on its products. It is the corporation's view that these are not properly any concern of the union.

It now is obvious that the economic blockade plan, which the union had figured would force quick capitulation, has backfired. In the first place, General Motors furnishes components to all other automobile companies, and the Automobile Manufacturers Association reports that the general strike at the corporation will close down all but one company sooner or later. The exception is Ford, which buys fuel pumps from General Motors, but also has an alternate source of supply that will permit operation on a more or less limited basis.

Another factor is that with strikes in the glass and bearing industries, it is doubtful that production can go on much longer unless these stoppages are settled. With steel workers also threatening to walk out and countless strikes and slow-downs among automotive suppliers, the outlook for continued production is anything but good.

One point that has generally been missed in public discussions about collective bargaining is that the wage issue is tied up closely with the matter of productivity. This has been brought into negotiations with the union by both Ford and Chrysler.

Ford, in a straightforward summary of its case, pointed out that reduced productivity per man has become so alarming that the very

(TURN TO PAGE 268, PLEASE)

SERVICE-PROVED

YEARS of toughest service prove Blackhawk Hydraulics superior in safety, rugged dependability and utility. "Service-Proved" Seal found only on Blackhawks. Only complete line of hydraulic hand jacks—models up to 50 tons capacity.

BLACKHAWK MFG. CO.
Dept. J1125, Milwaukee, Wis.

BLACKHAWK

Gear Pullers

GARAGE TOOLS

CARBON SCRAPER
CREEPER CASTERS
BUSHING REMOVERS
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Cal-Van MACHINE PRODUCTS INC.
809 WATER ST. JACKSON, MICH. U.S.A.

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KINNEAR ROLLING DOORS

For truck bodies as well as buildings. Rugged, dependable. Steel slat curtain coils up quickly, out of the way. Built any size. Motor operation, if desired. Write for details.

The Kinnear Mfg. Co.
2100-20 Fields Ave.
Columbus 16, Ohio

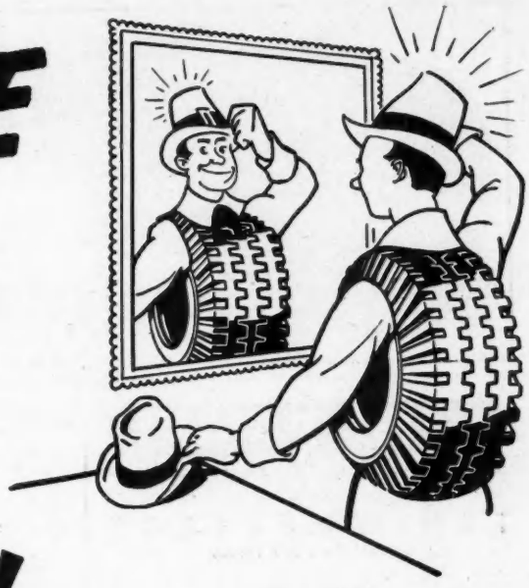
CLEAN FAST— CLEAN WELL!

Use Magnus Methods and Materials to clean fast and well and insure a really effective preventive maintenance program.

MAGNUS CHEMICAL CO.
38 South Avenue, Garwood, N. J.

Magnus Fleet Cleaning Materials

WHEN IT'S TIME TO RECAP...



YOU'LL BE GLAD YOUR TIRES ARE McCREARYS!

MR. FLEET OWNER, don't forget that in the days ahead, just as in the past, recapping will always offer the best means of obtaining most miles per dollar in tire use.

When it's time to recap, you'll be miles ahead with McCreary Tires. McCrearys are built to stand up longer . . . to give you *more* original miles —*more* recaps per casing—many *more* miles on every recap!

And that isn't just hearsay. For years—long before the war—McCreary Tires have been designed and built with the recapper's requirements in mind. They have a tougher, sturdier carcass . . . deeper tread . . . high, rugged shoulders to protect against cuts and bruises . . . strongest rayon cord which prevents tire growth and tread cracking.

This is the reason that for many years McCreary has selected qualified recappers as distributors wherever possible—and equally the reason why so many recappers have chosen McCreary Tires.

Remember—now as before—McCreary Tires *plus* recapping mean more miles for less tire expense. Get McCrearys—and you get the best!

HERE'S WHERE YOU WILL FIND McCREARY DEALERS

Our aim is not to cover the United States, but to do a good job within the territory we are best able to serve. McCreary is expanding its dealer organization of qualified recappers to include a retail outlet in all principal cities of the States shown at left.

FOR BETTER TIRE SERVICE . . . SEE THE AUTHORIZED McCREARY DEALER IN YOUR VICINITY

McCREARY TIRE AND RUBBER CO. • INDIANA, PA.

CHAMPION Safety TANKS

Mfg. by ALLIED EQUIPMENT CO. DETROIT

The Safest and Easiest to Install

This popular tank, approved by Underwriters, is mounted on either side without drilling or welding. Has exclusive features as standard equipment. Available also are a Four-Way Multi-Selector Tank Valve and a Straddle Deck Plate carried on the tank mounting brackets.

Distributed by **The TRUCKSTELL Co.** 1672 Union Commerce Bldg. CLEVELAND

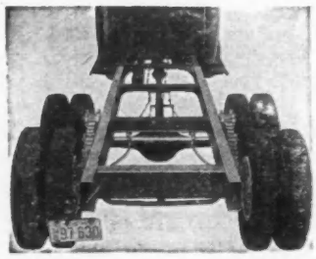
WRITE FOR LITERATURE AND NAME OF YOUR TRUCKSTELL DISTRIBUTOR

LITTLE GIANT

AUTOMOTIVE TRUCK EQUIPMENT

TEN WHEELERS

for 1½ to 5 Ton Trucks



Greater tonnage . . . more profit. Increase carrying capacity up to 20 tons. Extend frame to any desired length. Load kept in perfect balance . . . no teeter or end-sway. Simple, sturdy, no intricate parts. Timken bearings; steel castings; hydraulic brakes. Easily installed in 3 hours. 3 sizes. *LOW COST. No priority rating required.*

Also makers Little Giant Frame Extensions. Hand Hoists, Wrecking Cranes.

Write for Circulars, Low Prices

LITTLE GIANT PRODUCTS, INC.

1532 No. Adams Peoria, Illinois

Save Pencil Work

Order and Sell CARTER PARTS

by the Package!

Carter Carburetor Corporation

2841-59 North Spring Ave., St. Louis, Mo.

MEEHANITE

The Ideal Metal for BRAKE DRUMS

Developed in cooperation with General Foundry & Mfg. Co. of Flint, Mich.

GENERAL MOTORS STRIKE

(CONTINUED FROM PAGE 266)

future of the company is at stake. The company has demanded that the union bring into negotiations a plan for guaranteeing against work stoppages and loss of production. Pointing out that there have been 773 work stoppages since the union contract was signed in 1941, Ford spokesmen stated that some provision is necessary to require the union to recognize and fulfill a responsibility of its own in regard to loss of production and to assure the company the same security that it has provided for the union in the contract. One Ford spokesman stated that if the union demands access to the books, the company will stand flatly against it.

Chrysler also has submitted a list of contract revisions designed to assure responsibility of the union for work stoppages. Chrysler suffered 487 strikes during the time the "no-strike" pledge was in effect. Negotiations are in progress at both companies but there is yet little evidence as to whether the same basis for arriving at wage rates is being followed as is being demanded of General Motors.

END

(Please resume your reading on P. 94)

James L. McGovern, Jr., left, has been appointed replacement sales manager for the Raybestos Division of Raybestos-Manhattan, Inc. Jerome W. Brush, Jr., right, has been elevated to the position of merchandising manager of the company

CLEANER OIL

MEANS

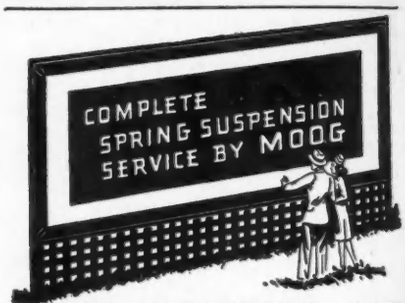
- Longer Engine Life
- Lower Oil Expense

Write for Bulletin No. 837

MICHIANA PRODUCTS CORP.

Michigan City, Indiana

MICHIANA OIL FILTERS



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ST. LOUIS, MO.

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"KOLORFILM" DECALCOMANIA

FIRST IN { APPEARANCE ECONOMY DURABILITY

Still Made With DuPont "DULUX"

Write Today for details

THE PERMALUX COMPANY

900-10 West Lake Street, Chicago, Ill.

VITAL TO—

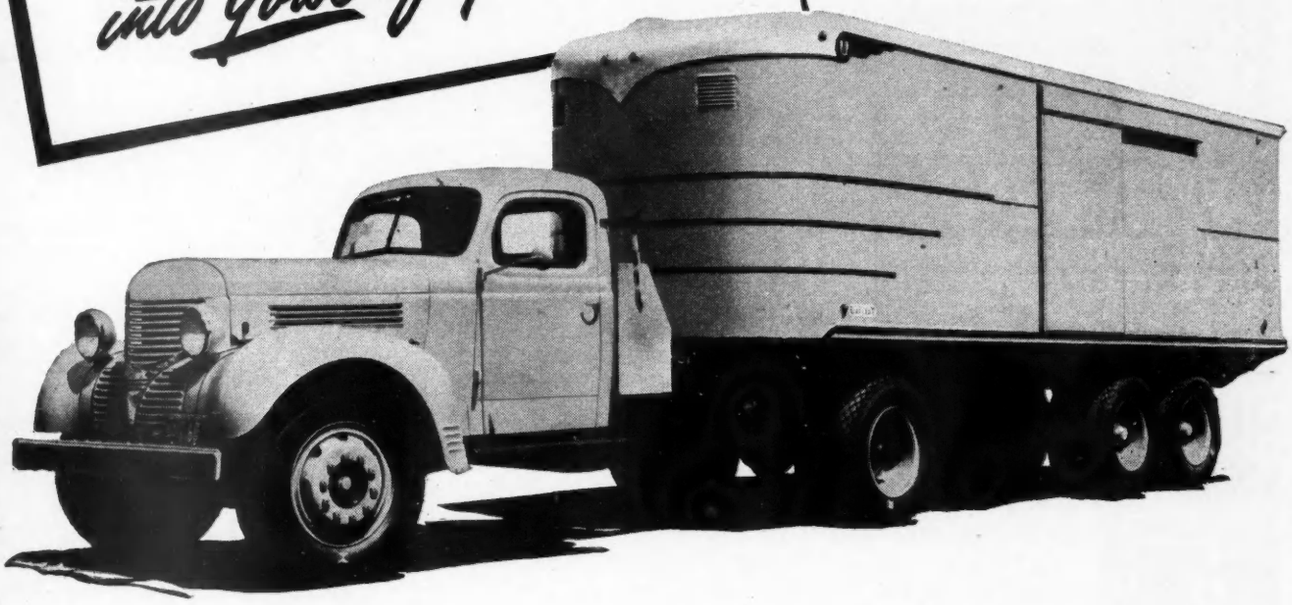
- Low Mileage Costs
- Easy Operation
- Maintained Schedules

SKF

BALL AND ROLLER BEARINGS

BUILD MORE PROFITS LONGER LIFE *into Your equipment...*

by building light with high-strength
U·S·S COR-TEN



DEAD weight pays no dividends . . . the payload is the pay-off. Every truck that drags around more dead weight than necessary lowers profits every trip it makes.

The proved economic advantages of dead weight reduction—bigger payload capacity and higher earnings, lower operating and maintenance costs, lower license fees—are translated into practically all clear profit when you build light with U·S·S COR-TEN.

Why? Because COR-TEN trims off weight at lowest cost. The price of COR-TEN is so little more than that of ordinary steel that the weight saved with COR-TEN usually offsets any difference in cost or makes it very small indeed. Thus U·S·S COR-TEN construction provides the widest margin between cost and savings. It pays for itself faster. Insures *maximum* return on the investment.

And COR-TEN construction safeguards profits too, because building light with COR-TEN involves no sacrifice of strength or stamina. On the contrary, with proper design, COR-TEN construction, while trimming off hundreds of pounds of weight, can actually increase the strength of the stress-carrying members on which the life of your equipment depends. This extra ruggedness pays off big in extra years of service and in fewer lay-ups. And remember this—repairs when necessary are easier to make, cost less and take less time, because U·S·S COR-TEN is as simple to handle as ordinary steel.

U·S·S HIGH STRENGTH STEELS

EVERY SUNDAY EVENING, United States Steel presents *The Theatre Guild on the Air*. American Broadcasting Company coast-to-coast network. Consult your newspaper for time and station.

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

USS HIGH STRENGTH STEEL UNITED STATES STEEL

UNITED STATES STEEL

MOST TALKED OF SAFETY EQUIPMENT
IN THE TRUCKING INDUSTRY

SNYDER SADDLE TANKS
SNYDER CYLINDER TANKS
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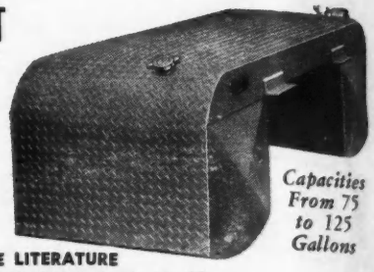
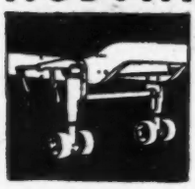
DISTRIBUTORS IN ALL PRINCIPAL CITIES
WRITE FOR FREE DESCRIPTIVE LITERATURE



SNYDER MANUFACTURING CO., P. O. BOX 14, BUFFALO 5, N. Y.
SNYDER TANK CORPORATION, P. O. BOX 2390, BIRMINGHAM, ALABAMA

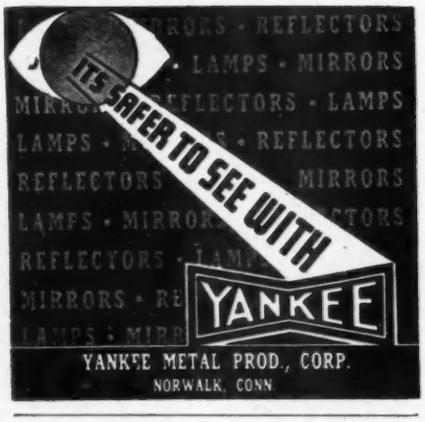
DAYTON Spoke Type Steel
WHEELS
AIR-COOL
BRAKE DRUMS AND TIRES
FOR TRUCKS, TRAILERS AND BUSES.
THE DAYTON STEEL FOUNDRY CO.
DAYTON, OHIO

AUSTIN
THE ACCEPTED STANDARD . . .
A complete line of LANDING GEARS.... HORIZONTAL, VERTICAL and FOLDING TYPES



Write for complete information on "SAFETY PROPS" and FIFTH WHEELS

AUSTIN
TRAILER EQUIPMENT COMPANY MUSKEGON MICHIGAN



YANKEE METAL PROD., CORP.
NORWALK, CONN.

OVER 70% OF ALL MAKES OF TRUCKS AND BUSES ARE Zollner EQUIPPED
ZOLLNER
HEAVY DUTY PISTONS

LEST THEY FORGET

(CONTINUED FROM PAGE 90)

Coal are Shipped from Mines by Motor Truck Each Year."

"Trucks Move 90 per cent of America's Household Goods with More Speed and Less Handling."

"Almost Everything You Buy Comes Part or All of the Way by Truck."

"ICC Trucks Pay 100 Million Dollars a Year in Insurance Premiums to Protect the Public."

Still others could proclaim: "Last Year This Vehicle Paid $1,475 in Taxes for the Use of This Highway."

Trucking Associations Cooperate

I UNDERSTAND that for some time stencils have been available in every state trucking association office to make it easy to broadcast this tax story throughout the nation. Admittedly, my highway travels in recent years have been limited, but to date I have not seen more than two or three trucks bearing this type of message.

I have mentioned only a few of the themes that might be employed. Scores of others, and better ones, could be developed to apply to truck services in local areas, as well as on a nationwide basis. Cooperation with your state trucking association and with the American Trucking Associations would do much to develop statistics and facts on which could be based an educational program that money alone could not begin to buy.

Stress Local Benefits

LOCAL consciousness of the value of commercial highway transportation can be brought home to your people by truck-borne statements proclaiming the fact that 53.5 per cent of the communities in Massachusetts are entirely dependent upon motor trucks; 62.5 per cent in Maine; 57.6 per cent in New Hampshire; 62.8 per

(TURN TO PAGE 272, PLEASE)

For a Smooth, Safe Ride at Lower Cost, Use
CLE-AIR
Hydrau-Matic Shock Eliminators
★ ★
The Cleveland Pneumatic Tool Co.
Cleveland, Ohio

COMPANION PRODUCTS
for Replacement Service
GLOBE Spinning Power BATTERIES
Full Spark PLUGS

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AMERICAN
BOSCH
AVIATION & AUTOMOTIVE ELECTRICAL PRODUCTS
FUEL INJECTION EQUIPMENT
American Bosch Corporation
Springfield, Mass.

UNITS AVAILABLE
GRICO
2-AXLE DRIVE
19842 W. Eight Mile Rd.
Detroit 19, Michigan

QUESTION:

Just how effectively can used oil be restored?

ANSWER: SO EFFECTIVELY THAT OIL NEED NEVER BE DISCARDED!

QUESTION: ***What Steps Are Necessary to Restore Oil for Re-Use?***

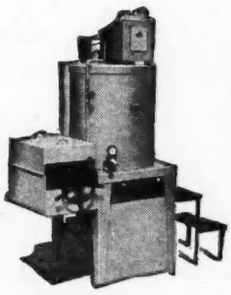
ANSWER: *For best results, the oil should be* heated, *to remove moisture and fuel dilution (if present). Then, solids, asphaltic materials and acids should be removed by contact with earth and filtration. Acidity should be reduced to new oil values.*

QUESTION: ***Can All These Steps Be Carried Out in a Single Piece of Equipment?***

ANSWER: *Yes, the YM Oil Refiner, a single self-contained unit, provides for* both *heating of the used oil, and for* two-stage *filtration.*

QUESTION: ***Is the YM Process Economical and Simple to Operate?***

ANSWER: *For every dollar spent for filtering materials, the YM method removes more pounds of contaminants than any other method known. Automatically controlled, the Oil Refiner needs little attention from the operator—no special skill is required.*



QUESTION: ***Is the Restored Oil Equal to New Oil?***

ANSWER: *Oil restored in the YM Oil Refiner can be used in the same manner and place as new parent oil. In fact, the restored oil, having been tempered, is frequently* more stable *than new oil.*

QUESTION: ***What Kinds of Oils Can Be Restored in a YM Unit?***

ANSWER: *Practically any kind used by industry. You'll find a helpful list in our YM bulletin—just mail the coupon for a copy. Or write us about your specific problem.*

THE YOUNGSTOWN MILLER COMPANY
A Subsidiary of Walter Kidde & Company, Inc.
1211 Kidde Avenue, Belleville 9, New Jersey

The Youngstown Miller Company
1211 Kidde Avenue
Belleville 9, New Jersey

Gentlemen:
Please send me further information about the YM Oil Refiner—and names of users in this locality.

Name_____

Position_____

Company_____

Street Address_____

City and State_____

TIRE CHAIN MAINTENANCE
A MUST in good Truck Fleet Operation

Your trucks have a greater value to you today than ever. Don't risk their loss through the lack of proper inspection and repair of your tire chains. This is the time to do it. Fore-handed and economically minded operators are now checking their stocks of

MONKEY LINKS

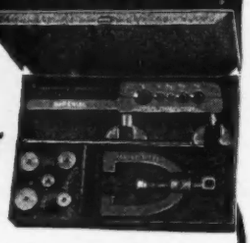
Keep MONKEY LINKS in your shop and on your trucks — No tools required; your drivers can fix a break immediately. Now is the time to order your winter's supply of MONKEY LINKS—Order them today.

FLOWER CITY SPECIALTY CO., Rochester 1, N. Y.
At All Reputable Jobbers

SEE NEXT MONTH'S SPECIAL AD ON THE NEW
Controlled Heat Zone
BLUE CROWN HUSKY
SPARK PLUGS
IN THIS PUBLICATION

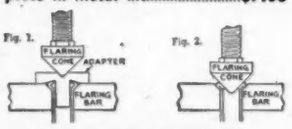
IMPERIAL
Double-Flaring Tool

. . . for steel and other metal tubing



● Ideal for brake, gas and oil line work. Overcomes tendency of welded steel tubing to crack when flared with ordinary flaring tool. First, tubing is belled, Fig. 1. Then flared in conventional manner, Fig. 2.

No. 93-FB Double-Flaring Tool complete in metal kit.....$7.00



Order From Your Jobber

THE IMPERIAL BRASS MFG. CO.
1209 W. Harrison St., Chicago 7, Ill.

Speed-up Schedules
Cut-down Costs!

BUELL HIGH PRESSURE AIR HORNS
reduce maintenance costs by decreasing unnecessary stops, starts and slow downs. This also means less wear and tear on equipment with lower gas and oil consumption. Write for complete details now.

AIR COMPRESSORS
Powerful, reliable and economical in use, here is a precision built compressor that will give long service without frequent parts replacement. We specialize in the manufacture of small, high speed compressors of the highest quality. Write for literature.

BUELL MANUFACTURING CO.
2988 Cottage Grove Ave., Chicago16

LEST THEY FORGET

(CONTINUED FROM PAGE 270)

cent in Vermont; 62.5 per cent in Rhode Island; and 61.3 per cent in Connecticut. Publicity given to facts like these is needed to make people sit up and take notice.

AMA to Make Survey

ANXIOUS to do its part in truck education, the AMA is now endeavoring to establish a scientific basis of approach by means of a national survey conducted by Opinion Research Corp. of Princeton, N. J. People throughout the land are being interviewed in person. Farmers, city dwellers, professional men, laborers, school teachers, Americans of all classes and occupations from Maine to California and from Canada to the Gulf are being asked how they feel about motor trucks. Do they appreciate them? If not, why not? A list of carefully phrased questions has been prepared in the hope that they will disclose the true public attitude toward motor transportation.

This project is the forerunner of a new motion picture on highway transportation. (Our last movie "Singing Wheels" has been shown to eight to ten million people and requests are still coming in.) It is to be the forerunner of other undertakings now being studied with a view to creating a better public consciousness of the purpose served by motor trucks.

It is hoped this poll will serve as a range finder by which manufacturers, operators and all others interested in promoting the use of trucks may direct their fire toward important targets of public misunderstanding.

Public Learning Hard Way

I BELIEVE that if a thing is right, and the American public knows it is right, no amount of enemy sniping

(TURN TO PAGE 274, PLEASE)

CITIES SERVICE OILS
ONCE-ALWAYS
CITIES SERVICE
means
GOOD SERVICE

GET LONGER, TROUBLE-FREE PERFORMANCE
with
Pedrick
precisioneered
PISTON RINGS
in guaranteed
ENGINEERED SETS
For every Car, Truck, Bus and Tractor

THE COMPLETE LINE
THAT COMPLETELY SATISFIES

THE FITZGERALD MFG. CO., TORRINGTON, CONN.
FITZGERALD GASKETS

TAPERED ROLLER BEARINGS
Tyson
TYSON BEARING CORP.
MASSILLON, OHIO

SHIP OFFICERS *and* TRUCK DRIVERS

Need Clear Vision

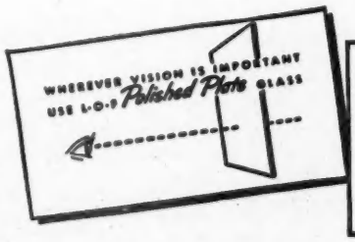
The ship officer relies on the precision-made lenses in his binoculars to bring him true images as he scans the horizon.

On the highway, too, clearer vision *through glass* is imperative to safe operation of vehicles. Your drivers must see quickly, clearly. Any imperfections that mar their vision or tire their eyes are sources of danger to both drivers and equipment.

That's why it is so important to inspect your fleet regularly for glass that needs replacement. On periodic service checkups, have your men look for cracks or discoloration in windshields and side and rear windows.

Provide better visibility by making replacements with Libbey·Owens·Ford Hi-Test Safety *Plate* Glass. To provide clearer visibility with maximum freedom from distortion, both sides of this high-quality glass are ground and polished. And, for greater safety, its two panes are laminated with a tough plastic interlayer.

For new equipment, too, specify Libbey·Owens·Ford Hi-Test Safety *Plate* Glass. It's one sure step you can take toward providing clearer visibility—and hence, safer driving. Libbey·Owens·Ford Glass Company, 46125 Nicholas Building, Toledo 3, Ohio.



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a Great Name in **GLASS**

Oldforge QUALITY TOOLS

"Oldforge" in many of the world's largest industrial plants means Quality Tools. This name won its enviable reputation over a period of many years. During this time the tools' uniform temper and distinctive design proved its worth and efficiency to thousands of skilled mechanics.

You need not be envious of these mechanics. You, too, may be the proud possessor of Quality Tools. Their modest cost will interest you.
If you are not now a Quality Tool user, see your supplier or write to us direct. Experience the thrill of using "Oldforge" Quality Tools.

New York Office: 11 Warren Street, Phone WOrth 3640

QUALITY TOOLS CORP. New Wilmington, Pa.

Available Trucks
1½ TO 20 TONS
TRUCKS · TRACTORS
TRAILERS · BUSES
(SINCE 1910)
TELEPHONE—BRUNSWICK 1100
AVAILABLE TRUCK CO.
2501 ELSTON AVE.—CHICAGO 47, ILL.

KEEP 'EM RUNNING
with
KEX
TIRE PLUGS
The Wedler-Shuford Co.
St. Louis 3 Mo.
PAT. FEB. 4, 1941
KEX
REG. U.S. PAT. OFF.

IF GLASS LENSES WERE FREE
IT WOULD STILL BE ECONOMICAL TO USE
BOWMAN BRIGHT BEAM PLASTIC LENSES
because they are SHATTER PROOF. Made in two colors. They have the same transparency as other lenses. Six sizes 2½ to 3½.
Contact your jobber or write direct
BOWMAN AUTOMOTIVE PLASTICS COMPANY
4316 W. 192nd St., Cleveland 16, Ohio

DAVISBILT
THE DAVISBILT PRODUCTS CO.
Engineering exclusively in the field of fluid carriers. Truck tanks, frameless trailers and semi-trailers.
★ Cincinnati, Ohio ★

HOLLAND PINTLE HOOKS and COUPLERS
A complete line, engineered to meet the most exacting needs of all truck and trailer operations. Write for catalog.
HOLLAND HITCH COMPANY
HOLLAND, MICHIGAN, U.S.A.

LEST THEY FORGET

(CONTINUED FROM PAGE 272)

can keep it down. Truck transportation has proved itself right in war and in peace, but are the people of this country sufficiently aware of that fact?

Unless they have experienced a predicament similar to that of the residents of Chicago during the truck strike a few months ago, I believe they are almost wholly unaware of it. Learning the hard way, many Chicago housewives found fruit and vegetable markets bare. Department stores lacked ordinary articles of apparel and common house furnishings. Drug stores ran out of prescription ingredients.

The strike lasted only a week; and it involved no more than 20 per cent of Chicago's trucks, but it caused uncounted hundreds of out-of-town trucks to halt their vehicles at the city limits with goods sorely needed by the people of that city.

Two hundred thousand pounds of vegetables and other food spoiled in warehouses. Railroad freight facilities as far west as Kansas City and as far east as Buffalo were snarled because freight cars could not be unloaded at Chicago.

Scores of war plants in Illinois, Wisconsin and Indiana were forced to close or curtail operations due to lack of incoming and outgoing shipments by truck. A carburetor rebuilding concern was not able to ship or receive merchandise for ten days.

A loop restaurant discontinued the use of linen when it was unable to send 1000 soiled tablecloths and 4000 napkins to the laundry by truck.

A chain store warehouse head reported large losses of perishable foods: Twenty-two thousand loaves of bread, $13,000 worth of layer cake, $10,000 worth of bananas, $3,000 worth of butter, eggs, and lard. Another firm reported a $50,000 loss through vegetable spoilage. A carload of herring rotted on a railroad siding.

A leading newspaper nearly failed to publish due to lack of ink. A truck, bristling with strong-arm boys, careening through side streets and roaring its defiance, finally succeeded in delivering 40,000 gal. of ink at midnight. *Look* magazine failed to

(TURN TO PAGE 276, PLEASE)

ANY MOTOR TRANSPORT HEATING PROBLEMS?
Consult our Engineers
HUNTER AND COMPANY
1560 East 17th Street,
CLEVELAND 14, OHIO

Ask for ..
Wohlert
ENGINEERED and IDENTIFIED PARTS
Wohlert CORPORATION LANSING MICHIGAN

JM PRODUCTS USE JM PRODUCTS
Johns-Manville brake linings
Fleet-Tested Sets
Brake Blocks
Clutch Facings

For Better Looking Longer Lasting *Transportation Bodies*

Superior Galvannealed
TRADE MARK

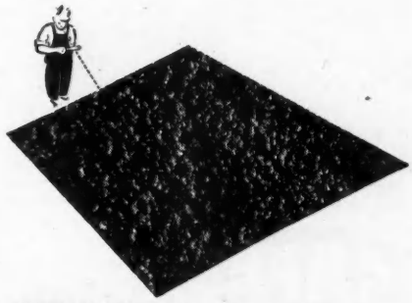
IN tomorrow's truck bodies, the first essential will be long life, the second will be attractive appearance. Buyers will want these qualities above all else.

Builders remember how a highly rust-resistant, zinc coated steel sheet, called Superior Galvannealed, helped them build better looking, longer lasting truck and trailer bodies . . . how it helped save construction and painting time, and make satisfied customers.

Superior Galvannealed "takes" fine finishes readily, and "holds" them longer. (See illustrations at right.) Ask your jobber about Superior Galvannealed.

THE SUPERIOR SHEET STEEL CO., CANTON, OHIO

Division of Continental Steel Corporation



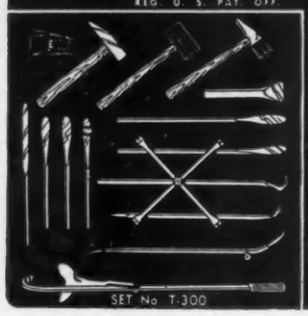
PAINTABILITY • This microscopic view, magnified many times, illustrates the "toothed" surface of Superior Galvannealed steel sheets. A patented heat treating process produces this ideal foundation for taking and holding paints and finishes.

LONG LIFE • This microscopic photograph of a cross section of Superior Galvannealed shows the alloy bond between the coating and base steel. This bond guards against rust under the paint and gives extra life to the finish and sheet itself.

THE **SUPERIOR**
SHEET STEEL COMPANY - *CANTON, OHIO*

PRODUCERS OF STEEL SHEETS, including SUPERIOR Galvanized, Tite and Extra Tite Coat Galvanized, CHECKERCOAT, LASTI-KOTE, COPPERIOR (copper steel base), SUPERIOR Galvannealed, SUPER METAL, SUPERIOR Long Ternes (drawing quality), Hot Rolled Annealed, Hot Rolled Annealed Pickled, Pickled Blue, Deoxidized, and Standard Types of Galvanized Formed Roofing.

DIVISION OF CONTINENTAL STEEL CORPORATION • GENERAL OFFICES, KOKOMO, INDIANA

KEN TIRE TOOLS
REG. U. S. PAT. OFF.

LEAD THE FIELD
ADVANCED DESIGN
QUALITY UNSURPASSED
SEE YOUR LOCAL JOBBER OR WRITE FOR LITERATURE
KEN TOOL MFG. CO.
AKRON 5, OHIO
SET No. T-300

The right braking material for any commercial vehicle
CUSTOM-BUILT SETS
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THERMOID COMPANY · TRENTON, N. J.

NEW LOW COST
DRILL GRINDER
Anyone can do expert drill grinding with this simple-to-use drill grinding attachment—fits on any bench grinder—saves buying new twist drills—saves time and materials that dull bits waste. Grinds bits from 3/16 to 1¼.

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PERMANENT
Vulcanized
TIRE & TUBE REPAIRS
for natural or synthetic rubber.
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America's Leading HEAVY-DUTY TRUCK Manufacturers Standardize on LIPE CLUTCHES

★ for more miles between teardowns!
★ for less wear and tear on the truck!
★ for easier maintenance and replacement!
LIPE-ROLLWAY CORP.
SYRACUSE, N. Y.

LEST THEY FORGET

(CONTINUED FROM PAGE 274)

get its 900,000 copies of one issue to its readers.

A drug firm 40 miles from Chicago producing Halazone tablets, used by the armed forces to purify water, was unable to make shipments. "We had Halazone tablets around here until we couldn't see over them," the traffic manager declared.

As late as a week after the strike, some 1700 freight cars were still tied up in Chicago for unloading. Railroad men termed it Chicago's worst rail traffic jam since Pearl Harbor.

Housewives scurried from one store to another in quest of things they needed. Harried merchants explained to equally harried customers, "It's the truck drivers' strike."

200 Communities Affected

WHILE the brunt of the tie-up was felt by Chicago, still citizens and business enterprises in communities 200 or more miles distant did not escape its effects.

Marshfield, Wisconsin—225 miles away—found incoming food shipments down 20 per cent. Stevens Point claimed serious shortages in fruits and groceries. Madison's meat supply fell below its scant wartime level. A trucking firm in Appleton, 170 miles away, reported 130 trucks laid up waiting to move into or through Chicago.

Only Minority Involved

MANY more instances of public distress and inconvenience can be traced directly to the tie-up. And, it must be remembered that this strike did not stop all of Chicago's trucks. The great majority continued to operate as usual. The point that stands out in bold relief is that only a minor segment of the trucking industry, if thrown into idleness, will cause major confusion throughout our general system of distribution.

Let's not be lulled to sleep by the assumption that the people credit motor trucks with having done a good war job and will not, therefore, turn against such form of transportation in peace.

(TURN TO PAGE 278, PLEASE)

BALDOR
BATTERY CHARGERS
Improved ventilation for cool operation, longer life and greater efficiency. They stand the strain of peak loads.

12-batt. size....328.00
less bulb
BALDOR ELECTRIC CO.
4340 Duncan Ave.
St. Louis 10, Mo.

THE REPAIRMAN'S FRIEND!

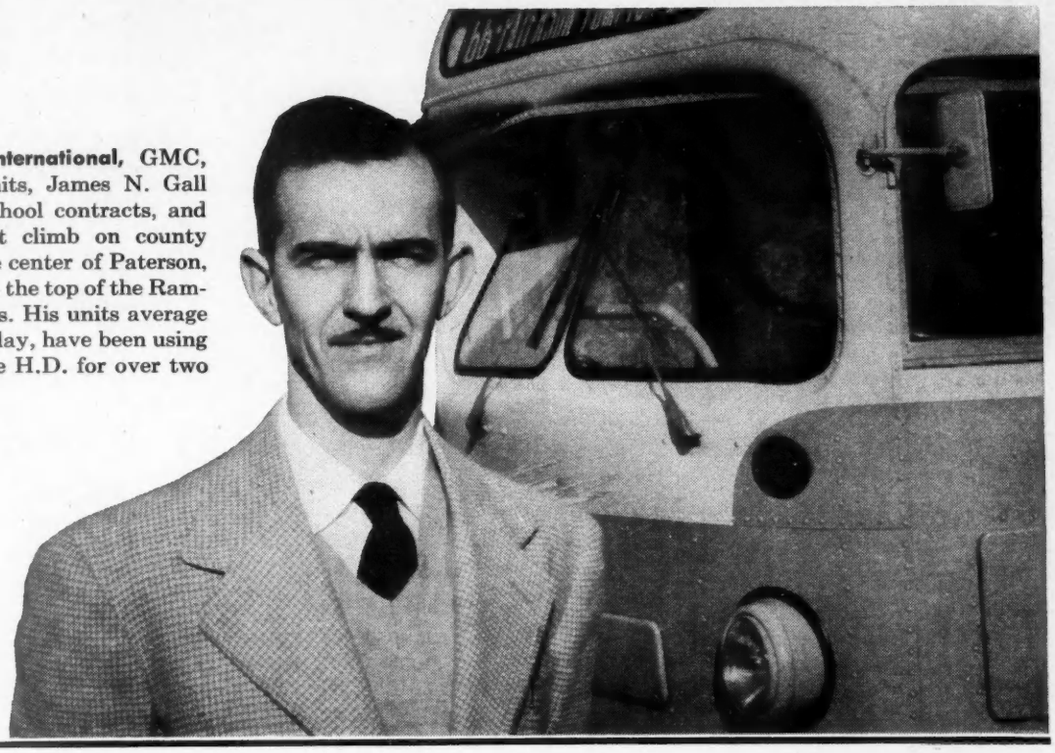
PURITAN
GASKA-SEAL

Specify
Velvetouch
BIMETALLIC FRICTION MATERIAL
for
CLUTCHES AND BRAKES
THE S. K. WELLMAN CO.
CLEVELAND, OHIO

Longer Life for Trucks
The popularity of "Rings made by Simplex" is increasing daily — the name SIMPLEX is growing bigger and bigger. Fortunate indeed, will be the service shop after the war, who has built his reconditioning business around Simplex Rings. They provide longer life, and as never before, longer life is what a truck needs today.

BUY WAR BONDS AND KEEP THEM
SIMPLEX PISTON RINGS
SIMPLEX PRODUCTS CORP., Cleveland, O.

Dart Trucks
HEAVY DUTY FOR OFF THE HIGHWAY SERVICE
— Specially Designed for —
Coal Mining—Iron Ore Mining—Copper Mining—Pit and Quarry—Logging—Oil Fields—Etc.
It Costs No More for Trucks Specially Built to Fit Your Needs. Have Our Engineers Visit and Analyze Your Operation.
DART TRUCK COMPANY
KANSAS CITY, MO.



Owning 22 International, GMC, and Mack units, James N. Gall operates 35 school contracts, and two lines that climb on county roads from the center of Paterson, New Jersey, to the top of the Ramapo Mountains. His units average 250 miles per day, have been using Gulf Dieselube H.D. for over two years.

Here's how New Jersey Bus Operator cuts down on maintenance costs!

James N. Gall Conducts Continuous Tests of Competitive Oils— Admits He Has Yet To Top Gulf Dieselube H.D.

"We've proved on our own fleet," reports James N. Gall, president of the Paterson, New Jersey Suburban Bus Line, "that Gulf Dieselube H.D. cuts maintenance costs and time considerably.

"When we tear down a motor, for instance, we find Gulf Dieselube H.D. has kept it in such excellent condition that it takes less labor time to overhaul that motor.

"We also find this oil cuts down on new and expensive replacements.

"In the two years we've been using it, Gulf Dieselube H.D. has lowered our over-all costs very appreciably."

No sludge after 95,000 miles

"Just the other day we overhauled a unit that had been 95,000 miles—had been using Dieselube all the way. When we dropped the pan there was no dirt or sludge whatever. We found no cylinder wear. Found the ring lands absolutely free from varnish.

"I've been making continuous tests for years—am always running one unit on competitive oils.

"But I have yet to find any oil that stands up and protects your motor as well as Gulf Dieselube H.D.

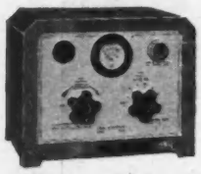
"Sure, Gulf Dieselube H.D. loosens all the old dirt in your motor—means more crank-case changes at first. But after a few changes the oil clears up—and Gulf Dieselube H.D. begins paying real dividends in protection and maintenance."

Find out today what Gulf Dieselube H. D. can do for you. Just write, wire or phone your nearest Gulf office!

GULF DIESELUBE H. D.

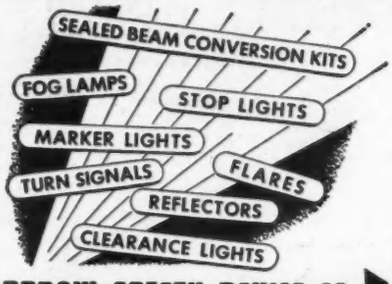
For Heavy-Duty Gasoline and Diesel Engines

NOT JUST YET—BUT SOON—We hope!



We are striving in every way to get back into production so that we may soon be able to again fulfill the demand for Valley Chargers. Announcement of their availability will follow at the earliest possible moment.

VALLEY ELECTRIC CORP.
4221 Forest Park Blvd., St. Louis 8, Mo.



ARROW SAFETY DEVICE CO.
MOUNT HOLLY, N. J.

FRINK SNO-PLOWS
REG. U.S. PAT. OFF.
Both "V" TYPE and ONE WAY BLADE TYPE
hand or power hydraulic control
FOR ALL MOTOR TRUCKS FROM 1½ to 10 TONS
Write for catalog 38AC and 38BC with discount to truck dealers.
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BETTER than Pre-War Quality

Repower with RAMCO 10 up PISTON RINGS

Gatke CUSTOM-BILT BRAKE LININGS
GATKE CORPORATION 228 N. La Salle Chicago 1, Ill.

LEST THEY FORGET

(CONTINUED FROM PAGE 276)

Public Education Required

I FIRMLY believe that an intense program of public education, combined with a positive program of driver courtesy and respect for the rights of others, is the only thing that will forestall a torrent of abuse and adverse feeling.

Just a word on driver courtesy and respect for the rights of others. The driver is the principal point of contact between trucking and the public. He is the salesman. In a large measure, his actions are the only yardstick by which people are able to judge trucking. An unfortunate experience or two, and enemies of years' duration are created. A simple courtesy performed, and a friend is made. Driver consideration for others has come a long way, but it still has a long way to go.

True, the truck driver has been called "the good Samaritan" of the road. Hosts of examples are available wherein he has proved his right to such title, but relying on that type of courtesy simply means that trouble must befall someone before his best foot is put forward. No program as important as the one we are discussing should ever be allowed to depend upon tragedy or mishap to prove its case. More pulling off the road, whenever possible, to allow traffic to pass. More friendly signals to indicate "all clear ahead." More avoidance of parking where others will be inconvenienced. And safety above all else. These are some of the things that must be practiced to a greater degree if truck drivers are to do a job of selling their industry to the public.

END

(Please resume your reading on P. 92)

Charles Fink has been appointed district sales manager in the Kentucky and lower Ohio and Indiana, the K-D Lamp Co.

RBC
ROLLER BEARINGS
help Transport Men and Material
Over the Road
ROLLER BEARING COMPANY of AMERICA
TRENTON . . . NEW JERSEY

REPAIR THE CARS WITH THE TOOLS THAT BUILT THEM
PORTABLE ELECTRIC and PNEUMATIC TOOLS
Thor
*Drills *Grinders
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THE ORIGINAL OIL CLAROFIER
DESIGNED ESPECIALLY FOR HEAVY-DUTY FLEET WORK
W.G.B. OIL CLARIFIER, INC.
KINGSTON, N. Y.

Better—but *not* more expensive!
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POWER BRAKES SINCE 1930
Better Built for Better Service
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